

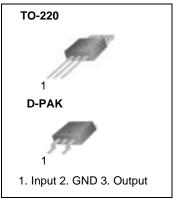
# MC78XX/LM78XX/MC78XXA 3-Terminal 1A Positive Voltage Regulator

### Features

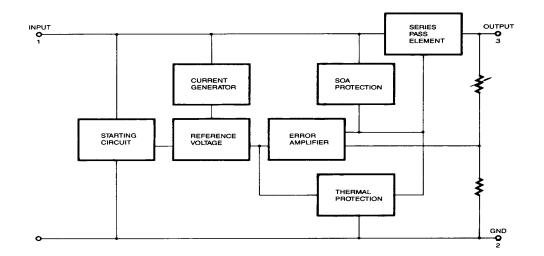
- Output Current up to 1A
- Output Voltages of 5, 6, 8, 9, 10, 12, 15, 18, 24V
- Thermal Overload Protection
- Short Circuit Protection
- Output Transistor Safe Operating Area Protection

### Description

The MC78XX/LM78XX/MC78XXA series of three terminal positive regulators are available in the TO-220/D-PAK package and with several fixed output voltages, making them useful in a wide range of applications. Each type employs internal current limiting, thermal shut down and safe operating area protection, making it essentially indestructible. If adequate heat sinking is provided, they can deliver over 1A output current. Although designed primarily as fixed voltage regulators, these devices can be used with external components to obtain adjustable voltages and currents.



### **Internal Block Digram**



### **Absolute Maximum Ratings**

Parameter	Symbol	Value	Unit
Input Voltage (for $V_O = 5V$ to 18V) (for $V_O = 24V$ )	VI VI	35 40	V V
Thermal Resistance Junction-Cases (TO-220)	ReJC	5	°C/W
Thermal Resistance Junction-Air (TO-220)	RθJA	65	°C/W
Operating Temperature Range	TOPR	0 ~ +125	°C
Storage Temperature Range	TSTG	-65 ~ +150	°C

### **Electrical Characteristics (MC7805/LM7805)**

(Refer to test circuit ,0°C < TJ < 125°C, IO = 500mA, VI = 10V, CI=  $0.33\mu$ F, CO=  $0.1\mu$ F, unless otherwise specified)

Parameter	Symbol	6.	onditions	MC7	805/LM	7805	Unit
Farameter	Symbol		nations	Min.	Тур.	Max.	Unit
		TJ =+25 °C		4.8	5.0	5.2	
Output Voltage	Vo	$\begin{array}{l} \text{5.0mA} \leq \text{Io} \leq \text{1.0A},  \text{Po} \leq \text{15W} \\ \text{VI} = \text{7V to 20V} \end{array}$		4.75	5.0	5.25	V
Line Regulation (Note1)	Regline	Тј=+25 °С	Vo = 7V to 25V	-	4.0	100	mV
	Regime	13=+23 C	$V_I = 8V$ to $12V$	-	1.6	50	IIIV
			IO = 5.0mA to1.5A	-	9	100	
Load Regulation (Note1)	Regload	7	IO =250mA to 750mA	-	4	50	mV
Quiescent Current	lQ	TJ =+25 °C	·	-	5.0	8.0	mA
Quieceent Current Change		IO = 5mA to 1.	0A	-	0.03	0.5	mA
Quiescent Current Change	ΔlQ	V <sub>I</sub> = 7V to 25V		-	0.3	1.3	
Output Voltage Drift	$\Delta V_O / \Delta T$	IO= 5mA		-	-0.8	-	mV/ °C
Output Noise Voltage	VN	f = 10Hz to 100	0KHz, TA=+25 °C	-	42	-	μV/Vo
Ripple Rejection	RR	f = 120Hz Vo = 8V to 18V	f = 120Hz Vo = 8V to 18V		73	-	dB
Dropout Voltage	VDrop	IO = 1A, TJ =+25 °C		-	2	-	V
Output Resistance	rO	f = 1KHz		-	15	-	mΩ
Short Circuit Current	Isc	VI = 35V, TA =	+25 °C	-	230	-	mA
Peak Current	Iрк	TJ =+25 °C		-	2.2	-	А

### Note:

# **Electrical Characteristics (MC7806)**

(Refer to test circuit ,0°C < TJ < 125°C, IO = 500mA, VI =11V, CI= 0.33µF, CO= 0.1µF, unless otherwise specified)

Devementer	Symphol	6.	nditions		MC7806	;	Unit
Parameter	Symbol		onations	Min.	Тур.	Max.	Unit
		TJ =+25 °C		5.75	6.0	6.25	
Output Voltage	Vo	5.0mA $\leq$ I <sub>O</sub> $\leq$ 1.0A, P <sub>O</sub> $\leq$ 15W VI = 8.0V to 21V		5.7	6.0	6.3	V
Line Degulation (Note1)	Doglino	ТJ =+25 °С	$V_I = 8V$ to 25V	-	5	120	mV
Line Regulation (Note1)	Regline	1J=+25 C	VI = 9V to 13V	-	1.5	60	mv
Lood Pogulation (Note1)	Regload	TJ =+25 °C	IO =5mA to 1.5A	-	9	120	mV
Load Regulation (Note1)	Regioau	1J=+25 C	IO =250mA to750A	-	3	60	mv
Quiescent Current	lq	TJ =+25 °C		-	5.0	8.0	mA
Quieseent Current Change	410	$\Delta I_Q$ IO = 5mA to 1A	-	-	0.5	mA	
Quiescent Current Change	ΔIQ	$V_I = 8V$ to 25V		-	-	1.3	ША
Output Voltage Drift	$\Delta V_O / \Delta T$	IO = 5mA		-	-0.8	-	mV/ °C
Output Noise Voltage	VN	f = 10Hz to 100K	Hz, TA =+25 °C	-	45	-	μV/Vo
Ripple Rejection	RR	f = 120Hz VI = 9V to 19V		59	75	-	dB
Dropout Voltage	VDrop	IO = 1A, TJ =+25 °C		-	2	-	V
Output Resistance	rO	f = 1KHz		-	19	-	mΩ
Short Circuit Current	Isc	VI= 35V, TA=+2	25 °C	-	250	-	mA
Peak Current	Iрк	TJ =+25 <sup>o</sup> C		-	2.2	-	А

### Note:

# **Electrical Characteristics (MC7808)**

(Refer to test circuit ,0°C < TJ < 125°C, IO = 500mA, VI =14V, CI= 0.33µF, CO= 0.1µF, unless otherwise specified)

Parameter	Symbol	6	onditions	Ν	/IC780	8	Unit
Farameter	Symbol		bhaillons	Min.	Тур.	Max.	Unit
		TJ =+25 °C		7.7	8.0	8.3	
Output Voltage	Vo	5.0mA $\leq$ Io $\leq$ 1 VI = 10.5V to 23		7.6	8.0	8.4	V
Line Degulation (Note1)	Dealine	TJ =+25 °C	VI = 10.5V to 25V	-	5.0	160	
Line Regulation (Note1)	Regline	1J=+25°C	VI = 11.5V to 17V	-	2.0	80	mV
Load Regulation (Note1)	Doglood	T	IO = 5.0mA to 1.5A	-	10	160	m)/
Load Regulation (Note1)	Regload	TJ =+25 °C	IO= 250mA to 750mA	-	5.0	80	mV
Quiescent Current	lQ	TJ =+25 °C	·	-	5.0	8.0	mA
Quieseent Current Change	41.5	IO = 5mA to 1.04	ł	-	0.05	0.5	~^^
Quiescent Current Change	ΔlQ	VI = 10.5A to 25	V	-	0.5	1.0	mA
Output Voltage Drift	$\Delta V_O / \Delta T$	IO = 5mA		-	-0.8	-	mV/ °C
Output Noise Voltage	VN	f = 10Hz to 100KH	Hz, TA =+25 <sup>ο</sup> C	-	52	-	μV/Vo
Ripple Rejection	RR	f = 120Hz, VI= 1	1.5V to 21.5V	56	73	-	dB
Dropout Voltage	VDrop	IO = 1A, TJ=+25 °C		-	2	-	V
Output Resistance	rO	f = 1KHz		-	17	-	mΩ
Short Circuit Current	Isc	VI= 35V, TA =+2	5 ℃	-	230	-	mA
Peak Current	IPK	TJ =+25 °C		-	2.2	-	А

#### Note:

# **Electrical Characteristics (MC7809)**

(Refer to test circuit ,0°C < TJ < 125°C, IO = 500mA, VI =15V, CI= 0.33µF, CO= 0.1µF, unless otherwise specified)

Parameter	Symphol	6	onditions	Γ	MC7809	9	Unit
Farameter	Symbol		maillons	Min.	Тур.	Max.	Unit
		TJ =+25°C		8.65	9	9.35	
Output Voltage	Vo	5.0mA≤ IO ≤1.0A VI= 11.5V to 24V		8.6	9	9.4	V
Line Degulation (Note1)	Doglino	T 25°C	VI = 11.5V to 25V	-	6	180	mV
Line Regulation (Note1)	Regline	TJ=+25°C	VI = 12V to 17V	-	2	90	mv
Lood Dogulation (Nata1)	Doglaad	T 25°C	$I_{O} = 5 mA$ to 1.5A	-	12	180	m\/
Load Regulation (Note1)	Regload	TJ=+25°C –	IO = 250mA to 750mA	-	4	90	mV
Quiescent Current	lq	Tj=+25°C		-	5.0	8.0	mA
Quiescent Current Change		$I_{O} = 5 \text{mA to } 1.0 \text{A}$	A	-	-	0.5	mA
Quiescent Current Change	ΔlQ	VI = 11.5V to 26	V	-	-	1.3	ma
Output Voltage Drift	$\Delta V_{O} / \Delta T$	IO = 5mA		-	-1	-	mV/ °C
Output Noise Voltage	VN	f = 10Hz to 100KH	łz, TA =+25 °C	-	58	-	μV/Vo
Ripple Rejection	RR	f = 120Hz VI = 13V to 23V		56	71	-	dB
Dropout Voltage	VDrop	IO = 1A, TJ=+25	°C	-	2	-	V
Output Resistance	rO	f = 1KHz		-	17	-	mΩ
Short Circuit Current	Isc	VI= 35V, TA =+2	5°C	-	250	-	mA
Peak Current	lрк	TJ= +25°C		-	2.2	-	А

#### Note:

# **Electrical Characteristics (MC7810)**

(Refer to test circuit ,0°C< TJ < 125°C, IO = 500mA, VI =16V, CI =  $0.33\mu$ F, CO= $0.1\mu$ F, unless otherwise specified)

Parameter	Symphol	6	onditions		MC7810	)	Unit
Farameter	Symbol		onations	Min.	Тур.	Max.	Unit
		VO $T_J = +25 \text{ °C}$ $5.0\text{mA} \le I_O \le 1.0\text{A}, \text{ P}_O \le 15\text{W}$ $V_I = 12.5\text{V to } 25\text{V}$		9.6	10	10.4	
Output Voltage	Vo			9.5	10	10.5	V
Line Regulation (Note1)	Regline	T,J =+25°C	VI = 12.5V to 25V	-	10	200	mV
Line Regulation (Note1)	Regime	1J =+25 C	VI = 13V to 25V	-	3	100	IIIV
Lood Dogulation (Nata1)	Declard	TJ =+25°C −	$I_{O} = 5 mA$ to 1.5A	-	12	200	mV
Load Regulation (Note1)	Regload	1J=+25°C	IO = 250mA to 750mA	-	4	400	mv
Quiescent Current	lq	TJ =+25°C		-	5.1	8.0	mA
Quieseent Current Change	Ale	IO = 5mA to 1.0A	A	-	-	0.5	mA
Quiescent Current Change	ΔlQ	VI = 12.5V to 29	V	-	-	1.0	IIIA
Output Voltage Drift	$\Delta V_{O} / \Delta T$	IO = 5mA		-	-1	-	mV/°C
Output Noise Voltage	VN	f = 10Hz to 100KH	Iz, TA =+25 °C	-	58	-	μV/Vo
Ripple Rejection	RR	f = 120Hz VI = 13V to 23V		56	71	-	dB
Dropout Voltage	VDrop	Io = 1A, Tj=+25 °C		-	2	-	V
Output Resistance	rO	f = 1KHz		-	17	-	mΩ
Short Circuit Current	ISC	VI = 35V, TA=+2	5 °C	-	250	-	mA
Peak Current	lрк	TJ =+25 °C		-	2.2	-	А

#### Note:

# **Electrical Characteristics (MC7812)**

(Refer to test circuit ,0°C < TJ < 125°C, IO = 500mA, VI =19V, CI= 0.33µF, CO=0.1µF, unless otherwise specified)

Devementer	Sumbal	6	andition o	N	/IC781	2	Unit
Parameter	Symbol		onditions	Min.	Тур.	Max.	Unit
		TJ =+25 °C		11.5	12	12.5	
Output Voltage	Vo	5.0mA ≤ IO≤1.0A VI = 14.5V to 27V		11.4	12	12.6	V
Line Degulation (Note1)	Doglino	TJ =+25 °C	VI = 14.5V to 30V	-	10	240	mV
Line Regulation (Note1)	Regline	1J=+25 C	VI = 16V to 22V	-	3.0	120	mv
Load Pagulation (Note1)	Doglood	T	IO = 5mA to 1.5A	-	11	240	mV
Load Regulation (Note1)	Regload	TJ =+25 °C	IO = 250mA to 750mA	-	5.0	120	mv
Quiescent Current	lQ	TJ =+25 °C		-	5.1	8.0	mA
Quieseent Current Change		IO = 5mA to 1.0A	l l	-	0.1	0.5	~^^
Quiescent Current Change	ΔlQ	VI = 14.5V to 30V	/	-	0.5	1.0	mA
Output Voltage Drift	$\Delta V_O / \Delta T$	IO = 5mA		-	-1	-	mV/ °C
Output Noise Voltage	VN	f = 10Hz to 100KH	z, TA =+25 °C	-	76	-	μV/Vo
Ripple Rejection	RR	f = 120Hz VI = 15V to 25V		55	71	-	dB
Dropout Voltage	VDrop	IO = 1A, TJ=+25 °C		-	2	-	V
Output Resistance	rO	f = 1KHz		-	18	-	mΩ
Short Circuit Current	Isc	VI = 35V, TA=+2	5°C	-	230	-	mA
Peak Current	Iрк	TJ = +25 °C		-	2.2	-	А

#### Note:

# **Electrical Characteristics (MC7815)**

(Refer to test circuit ,0°C < TJ < 125°C, IO = 500mA, VI =23V, CI=  $0.33\mu$ F, CO= $0.1\mu$ F, unless otherwise specified)

Devemator	Symbol		nditiono		MC7815	5	Unit
Parameter	Symbol		onditions	Min.	Тур.	Max.	Unit
		TJ =+25 °C		14.4	15	15.6	
Output Voltage	Vo	$5.0mA \le I_O \le 1.0A, P_O \le 15W$ VI = 17.5V to 30V		14.25	15	15.75	V
Line Regulation (Note1)	Doglino	TJ =+25 °C	VI = 17.5V to 30V	-	11	300	mV
Line Regulation (Note1)	Regline	1J =+25 C	VI = 20V to 26V	-	3	150	mv
			IO = 5mA to 1.5A	-	12	300	
Load Regulation (Note1)	Regload		IO = 250mA to 750mA	-	4	150	mV
Quiescent Current	lq	TJ =+25 °C		-	5.2	8.0	mA
Quieseent Current Change		IO = 5mA to 1	.0A	-	-	0.5	~ ^
Quiescent Current Change	ΔlQ	VI = 17.5V to	30V	-	-	1.0	mA
Output Voltage Drift	$\Delta V_O / \Delta T$	IO = 5mA		-	-1	-	mV/ °C
Output Noise Voltage	VN	f = 10Hz to 100	KHz, T <sub>A</sub> =+25 °C	-	90	-	μV/Vo
Ripple Rejection	RR	f = 120Hz VI = 18.5V to	f = 120Hz VI = 18.5V to 28.5V		70	-	dB
Dropout Voltage	VDrop	IO = 1A, TJ=+25 °C		-	2	-	V
Output Resistance	rO	f = 1KHz		-	19	-	mΩ
Short Circuit Current	Isc	VI = 35V, TA=	+25 °C	-	250	-	mA
Peak Current	lьk	TJ =+25 °C		-	2.2	-	А

### Note:

# **Electrical Characteristics (MC7818)**

(Refer to test circuit ,0°C < TJ < 125°C, IO = 500mA, VI =27V, CI= 0.33µF, CO=0.1µF, unless otherwise specified)

Parameter	Symphol	6	nditiono	Ν	AC781	3	Unit
Parameter	Symbol		onditions	Min.	Тур.	Max.	Unit
		TJ =+25 °C		17.3	18	18.7	
Output Voltage	Vo	$5.0 \text{mA} \le \text{IO} \le 1.0 \text{A}$ VI = 21V to 33V	A, P <sub>O</sub> ≤15W	17.1	18	18.9	V
Line Degulation (Nate1)	Doglino	TJ =+25 ⁰C	VI = 21V to 33V	-	15	360	mV
Line Regulation (Note1)	Regline	1J =+25 C	VI = 24V to 30V	-	5	180	IIIV
Load Pagulation (Noto1)	Pogload	$T_{1} = 125^{\circ}$ C	$I_{O} = 5 mA$ to 1.5A	-	15	360	mV
Load Regulation (Note1)	Regload		IO = 250mA to 750mA	-	5.0	180	mv
Quiescent Current	lQ	TJ =+25 °C		-	5.2	8.0	mA
Quieseent Current Change		$I_{O} = 5 \text{mA to } 1.0 \text{A}$		-	-	0.5	m 4
Quiescent Current Change	ΔlQ	VI = 21V to 33V		-	-	1	mA
Output Voltage Drift	$\Delta V_O / \Delta T$	IO = 5mA		-	-1	-	mV/ °C
Output Noise Voltage	VN	f = 10Hz to 100KH	z, TA =+25 °C	-	110	-	μV/Vo
Ripple Rejection	RR	f = 120Hz VI = 22V to 32V		53	69	-	dB
Dropout Voltage	VDrop	IO = 1A, TJ=+25 °C		-	2	-	V
Output Resistance	rO	f = 1KHz		-	22	-	mΩ
Short Circuit Current	Isc	VI = 35V, TA=+28	5°C	-	250	-	mA
Peak Current	Iрк	TJ =+25 °C		-	2.2	-	А

#### Note:

# **Electrical Characteristics (MC7824)**

(Refer to test circuit ,0°C < TJ < 125°C, IO = 500mA, VI =33V, CI= 0.33µF, CO=0.1µF, unless otherwise specified)

Parameter	Symbol	6	onditions	Ν	<b>//C</b> 782	4	Unit
Farameter	Symbol		Diamons	Min.	Тур.	Max.	Unit
		TJ =+25 °C		23	24	25	
Output Voltage	Vo	$5.0 \text{mA} \le \text{IO} \le 1.0$ VI = 27V to 38V			24	25.25	V
Line Regulation (Note1)	Poglino	TJ =+25 <sup>o</sup> C	VI = 27V to 38V	-	17	480	mV
Line Regulation (Note1)	Regline	1J =+25 C	VI = 30V to 36V	-	6	240	IIIV
Load Regulation (Note1)	Regload	TJ =+25 <sup>o</sup> C	$I_{O} = 5 mA$ to 1.5A	-	15	480	mV
Load Regulation (Note I)	Regioau	1J =+25 C	IO = 250mA to 750mA	-	5.0	240	mv
Quiescent Current	lQ	TJ =+25 °C		-	5.2	8.0	mA
Quiescent Current Change		IO = 5mA to 1.0A		-	0.1	0.5	mA
Quiescent Current Change	ΔlQ	VI = 27V to 38V		-	0.5	1	IIIA
Output Voltage Drift	$\Delta V_O / \Delta T$	IO = 5mA		-	-1.5	-	mV/ °C
Output Noise Voltage	VN	f = 10Hz to 100KH	z, TA =+25 °C	-	60	-	μV/Vo
Ripple Rejection	RR	f = 120Hz VI = 28V to 38V		50	67	-	dB
Dropout Voltage	VDrop	Io = 1A, Tj=+25 °C		-	2	-	V
Output Resistance	rO	f = 1KHz		-	28	-	mΩ
Short Circuit Current	ISC	VI = 35V, TA=+2	5 °C	-	230	-	mA
Peak Current	Iрк	TJ =+25 °C		-	2.2	-	А

#### Note:

# **Electrical Characteristics (MC7805A)**

(Refer to the test circuits. 0°C < TJ < 125°C, I<sub>0</sub> =1A, V I = 10V, C I=0.33µF, C O=0.1µF, unless otherwise specified)

Parameter	Symbol	Co	onditions	Min.	Тур.	Max.	Unit
		TJ =+25 °C		4.9	5	5.1	
Output Voltage	Vo	IO = 5mA to 1 VI = 7.5V to 2		4.8	5	5.2	V
		VI = 7.5V to 2 IO = 500mA	5V	-	5	50	
Line Regulation (Note1)	Regline	$V_I = 8V$ to $12V_I$	/	-	3	50	mV
		TJ =+25 °C	VI= 7.3V to 20V	-	5	50	
		1J=+25 C	VI= 8V to 12V	-	1.5	25	
Load Regulation (Note1)		TJ =+25 <sup>o</sup> C IO = 5mA to 1	.5A	-	9	100	
(,	Regload	IO = 5mA to 1	A	-	9	100	mV
		IO = 250mA to	o 750mA	-	4	50	
Quiescent Current	lQ	TJ =+25 °C		-	5.0	6	mA
Oning and Onemat		IO = 5mA to 1	A	-	-	0.5	
Quiescent Current Change	ΔlQ	VI = 8 V to 25	VI = 8 V to 25V, IO = 500mA		-	0.8	mA
Change		VI = 7.5V to 2	0V, TJ =+25 <sup>o</sup> C	-	-	0.8	
Output Voltage Drift	$\Delta V / \Delta T$	lo = 5mA		-	-0.8	-	mV/ °C
Output Noise Voltage	VN	f = 10Hz to 10 T <sub>A</sub> =+25 °C	00KHz	-	10	-	μV/Vo
Ripple Rejection	RR	f = 120Hz, IO VI = 8V to 18V	-	68	-	dB	
Dropout Voltage	VDrop	IO = 1A, TJ =-	+25 °C	-	2	-	V
Output Resistance	rO	f = 1KHz		-	17	-	mΩ
Short Circuit Current	ISC	VI= 35V, TA =	⊧+25 °C	-	250	-	mA
Peak Current	IPK	TJ= +25 °C		-	2.2	-	А

#### Note:

## **Electrical Characteristics (MC7806A)**

(Refer to the test circuits. 0°C < TJ < 125°C, Io =1A, V I =11V, C I=0.33µF, C O=0.1µF, unless otherwise specified)

Parameter	Symbol	Co	onditions	Min.	Тур.	Max.	Unit
		TJ =+25 °C		5.58	6	6.12	
Output Voltage	Vo	IO = 5mA to 1 VI = 8.6V to 2		5.76	6	6.24	V
		VI= 8.6V to 25 IO = 500mA	5V	-	5	60	
Line Regulation (Note1)	Regline	VI= 9V to 13V	1	-	3	60	mV
		Тј =+25 °С	VI= 8.3V to 21V	-	5	60	
		1J=+25°C	VI= 9V to 13V	-	1.5	30	
Load Regulation (Note1)		TJ =+25 <sup>o</sup> C IO = 5mA to 1	.5A	-	9	100	
	Regload $I_O = 5mA$ to 1A		-	4	100	mV	
		IO = 250mA te	o 750mA	-	5.0	50	
Quiescent Current	lQ	TJ =+25 °C		-	4.3	6	mA
		IO = 5mA to 1A		-	-	0.5	mA
Quiescent Current Change	ΔlQ	VI = 9V to 25V, IO = 500mA		-	-	0.8	
		VI= 8.5V to 21V, TJ =+25 °C		-	-	0.8	
Output Voltage Drift	$\Delta V / \Delta T$	IO = 5mA		-	-0.8	-	mV/ °C
Output Noise Voltage	VN	f = 10Hz to 10 T <sub>A</sub> =+25 <sup>o</sup> C	00KHz	-	10	-	μV/Vo
Ripple Rejection	RR	f = 120Hz, IO = 500mA VI = 9V to 19V		-	65	-	dB
Dropout Voltage	VDrop	IO = 1A, TJ =+25 °C		-	2	-	V
Output Resistance	rO	f = 1KHz		-	17	-	mΩ
Short Circuit Current	ISC	VI= 35V, TA =	=+25 °C	-	250	-	mA
Peak Current	lрк	Tj=+25 °C		-	2.2	-	A

#### Note:

### **Electrical Characteristics (MC7808A)**

(Refer to the test circuits.  $0^{\circ}C < T_J < 125^{\circ}C$ ,  $I_0 = 1A$ ,  $V_I = 14V$ ,  $C_I = 0.33\mu$ F,  $C_O = 0.1\mu$ F, unless otherwise specified)

Parameter	Symbol	Co	onditions	Min.	Тур.	Max.	Unit
		TJ =+25 °C		7.84	8	8.16	
Output Voltage	Vo		IO = 5mA to 1A, PO ≤15W VI = 10.6V to 23V		8	8.3	V
		VI= 10.6V to 2 IO = 500mA	VI= 10.6V to 25V IO = 500mA		6	80	
Line Regulation (Note1)	Regline	VI= 11V to 17	ν.	-	3	80	mV
	_	TJ =+25 °C	VI= 10.4V to 23V	-	6	80	
		1J=+25°C	VI= 11V to 17V	-	2	40	
Load Regulation (Note1)		TJ =+25 <sup>o</sup> C IO = 5mA to 1	TJ =+25 °C IO = 5mA to 1.5A		12	100	
	Regload	IO = 5mA to 1A IO = 250mA to 750mA		-	12	100	mV
				-	5	50	
Quiescent Current	lQ	TJ =+25 °C	TJ =+25 °C		5.0	6	mA
		IO = 5mA to 1	A	-	-	0.5	
Quiescent Current Change	ΔlQ	VI = 11V to 28	5V, IO = 500mA	-	-	0.8	mA
		VI= 10.6V to 2	23V, TJ =+25 <sup>o</sup> C	-	-	0.8	
Output Voltage Drift	$\Delta V / \Delta T$	IO = 5mA		-	-0.8	-	mV/ °C
Output Noise Voltage	V <sub>N</sub>	f = 10Hz to 10 T <sub>A</sub> =+25 °C	00KHz	-	10	-	μV/Vo
Ripple Rejection	RR	f = 120Hz, IO = 500mA VI = 11.5V to 21.5V		-	62	-	dB
Dropout Voltage	VDrop	IO = 1A, TJ =+25 °C		-	2	-	V
Output Resistance	rO	f = 1KHz		-	18	-	mΩ
Short Circuit Current	Isc	VI= 35V, TA =	=+25 °C	-	250	-	mA
Peak Current	Iрк	TJ=+25 °C		-	2.2	-	А

### Note:

## **Electrical Characteristics (MC7809A)**

(Refer to the test circuits. 0°C < TJ < 125°C, I<sub>0</sub> =1A, V I = 15V, C I=0.33µF, C O=0.1µF, unless otherwise specified)

Parameter	Symbol	Co	onditions	Min.	Тур.	Max.	Unit
		TJ =+25°C		8.82	9.0	9.18	
Output Voltage	Vo		IO = 5mA to 1A, PO≤15W VI = 11.2V to 24V		9.0	9.35	V
		VI= 11.7V to 2 IO = 500mA	VI= 11.7V to 25V IO = 500mA		6	90	
Line Regulation (Note1)	Regline	VI= 12.5V to 1	19V	-	4	45	5 mV
		TJ =+25°C	VI= 11.5V to 24V	-	6	90	
		VI= 12.5V to 19		-	2	45	
Load Regulation (Note1)		TJ =+25 <sup>°</sup> C IO = 5mA to 1	TJ =+25°C IO = 5mA to 1.0A		12	100	
	Regload	$I_O = 5mA$ to 1.0A		-	12	100	mV
		IO = 250mA to 750mA		-	5	50	
Quiescent Current	lQ	TJ =+25 °C		-	5.0	6.0	mA
		VI = 11.7V to	25V, TJ=+25 <sup>°</sup> C	-	-	0.8	
Quiescent Current Change	ΔlQ	VI = 12V to 25	5V, IO = 500mA	-	-	0.8	mA
		IO = 5mA to 1	.0A	-	-	0.5	
Output Voltage Drift	$\Delta V / \Delta T$	IO = 5mA		-	-1.0	-	mV/ °C
Output Noise Voltage	VN	f = 10Hz to 10 T <sub>A</sub> =+25 °C	00KHz	-	10	-	μV/Vo
Ripple Rejection	RR	f = 120Hz, IO = 500mA VI = 12V to 22V		-	62	-	dB
Dropout Voltage	VDrop	IO = 1A, TJ =+25 °C		-	2.0	-	V
Output Resistance	rO	f = 1KHz		-	17	-	mΩ
Short Circuit Current	ISC	VI= 35V, TA =	:+25 °C	-	250	-	mA
Peak Current	lрк	TJ=+25°C		-	2.2	-	А

#### Note:

# **Electrical Characteristics (MC7810A)**

(Refer to the test circuits. 0°C < TJ < 125°C, I<sub>0</sub> =1A, V I = 16V, C I=0.33µF, C O=0.1µF, unless otherwise specified)

Parameter	Symbol	Co	onditions	Min.	Тур.	Max.	Unit
		TJ =+25 <sup>°</sup> C		9.8	10	10.2	
Output Voltage	Vo		IO = 5mA to 1A, PO $\leq$ 15W VI =12.8V to 25V		10	10.4	V
		VI= 12.8V to IO = 500mA	VI= 12.8V to 26V IO = 500mA		8	100	
Line Regulation (Note1)	Regline	VI= 13V to 20	)V	-	4	50	mV
		TJ =+25 °C	VI= 12.5V to 25V	-	8	100	
		15 = +25 C	VI= 13V to 20V	-	3	50	
Load Regulation (Note1)		T <sub>J</sub> =+25 °C IO = 5mA to 7	T <sub>J</sub> =+25 °C IO = 5mA to 1.5A		12	100	
	Regload	IO = 5mA to 1.0A		-	12	100	mV
		IO = 250mA to 750mA		-	5	50	
Quiescent Current	lQ	TJ =+25 °C		-	5.0	6.0	mA
		VI = 13V to 2	6V, TJ=+25 <sup>°</sup> C	-	-	0.5	
Quiescent Current Change	ΔlQ	VI = 12.8V to	25V, IO = 500mA	-	-	0.8	mA
		IO = 5mA to 7	1.0A	-	-	0.5	
Output Voltage Drift	$\Delta V / \Delta T$	IO = 5mA		-	-1.0	-	mV/ °C
Output Noise Voltage	VN	f = 10Hz to 1 T <sub>A</sub> =+25 °C	f = 10Hz to 100KHz T <sub>A</sub> =+25 <sup>°</sup> C		10	-	μV/Vo
Ripple Rejection	RR	f = 120Hz, IO = 500mA VI = 14V to 24V		-	62	-	dB
Dropout Voltage	VDrop	IO = 1A, TJ =+25 <sup>°</sup> C		-	2.0	-	V
Output Resistance	rO	f = 1KHz		-	17	-	mΩ
Short Circuit Current	ISC	VI= 35V, TA :	=+25 <sup>°</sup> C	-	250	-	mA
Peak Current	lрк	Tj=+25 °C		-	2.2	-	A

### Note:

# **Electrical Characteristics (MC7812A)**

(Refer to the test circuits. 0°C < TJ < 125°C, Io =1A, V I = 19V, C I=0.33µF, C O=0.1µF, unless otherwise specified)

Parameter	Symbol	Co	onditions	Min.	Тур.	Max.	Unit
		TJ =+25 °C		11.75	12	12.25	
Output Voltage	Vo	-	IO = 5mA to 1A, PO ≤15W VI = 14.8V to 27V		12	12.5	V
		VI= 14.8V to IO = 500mA	30V	-	10	120	
Line Regulation (Note1)	Regline	VI= 16V to 22	2V	-	4	120	mV
		T,j =+25 °C	VI= 14.5V to 27V	-	10	120	
		1J = <del>+</del> 25 C	VI= 16V to 22V	-	3	60	
Load Regulation (Note1)		T <sub>J</sub> =+25 °C IO = 5mA to 2	1.5A	-	12	100	
	Regload	IO = 5mA to 1.0A		-	12	100	
		IO = 250mA to 750mA		-	5	50	
Quiescent Current	lQ	TJ =+25 <sup>°</sup> C		-	5.1	6.0	mA
		VI = 15V to 3	0V, TJ=+25 <sup>°</sup> C	-		0.8	
Quiescent Current Change	ΔlQ	VI = 14V to 2	7V, IO = 500mA	-		0.8	mA
		IO = 5mA to 7	1.0A	-		0.5	
Output Voltage Drift	$\Delta V / \Delta T$	IO = 5mA		-	-1.0	-	mV/°C
Output Noise Voltage	VN	f = 10Hz to 1 T <sub>A</sub> =+25 <sup>°</sup> C	f = 10Hz to 100KHz T <sub>A</sub> =+25 <sup>°</sup> C		10	-	μV/Vo
Ripple Rejection	RR	f = 120Hz, IO = 500mA VI = 14V to 24V		-	60	-	dB
Dropout Voltage	VDrop	IO = 1A, TJ =+25°C		-	2.0	-	V
Output Resistance	rO	f = 1KHz		-	18	-	mΩ
Short Circuit Current	ISC	VI= 35V, TA =	=+25 <sup>°</sup> C	-	250	-	mA
Peak Current	IPK	Tj=+25 <sup>°</sup> C		-	2.2	-	А

#### Note:

## **Electrical Characteristics (MC7815A)**

(Refer to the test circuits. 0°C < TJ < 125°C, Io =1A, V I =23V, C I=0.33µF, C O=0.1µF, unless otherwise specified)

Parameter	Symbol	Co	onditions	Min.	Тур.	Max.	Unit
		TJ =+25 °C		14.7	15	15.3	
Output Voltage	Vo	IO = 5mA to 7 VI = 17.7V to	1A, Po ≤15W 30V	14.4	15	15.6	V
		VI= 17.9V to IO = 500mA	VI= 17.9V to 30V IO = 500mA		10	150	
Line Regulation (Note1)	Regline	VI= 20V to 26	SV	-	5	150	mV
	_	TJ =+25°℃	VI= 17.5V to 30V	-	11	150	
		1J=+25 C	VI= 20V to 26V	-	3	75	
Load Regulation (Note1)		T <sub>J</sub> =+25 °C IO = 5mA to 7	T <sub>J</sub> =+25 °C IO = 5mA to 1.5A		12	100	
	Regload	IO = 5mA to 1.0A IO = 250mA to 750mA		-	12	100	mV
				-	5	50	
Quiescent Current	lq	TJ =+25 °C		-	5.2	6.0	mA
		VI = 17.5V to	30V, TJ =+25 °C	-	-	0.8	
Quiescent Current Change	$\Delta I_Q$	VI = 17.5V to	30V, IO = 500mA	-	-	0.8	mA
		IO = 5mA to 7	1.0A	-	-	0.5	
Output Voltage Drift	$\Delta V / \Delta T$	IO = 5mA		-	-1.0	-	mV/°C
Output Noise Voltage	VN	f = 10Hz to 1 T <sub>A</sub> =+25 °C	00KHz	-	10	-	μV/Vo
Ripple Rejection	RR	f = 120Hz, IO = 500mA VI = 18.5V to 28.5V		-	58	-	dB
Dropout Voltage	VDrop	IO = 1A, TJ =+25 °C		-	2.0	-	V
Output Resistance	rO	f = 1KHz		-	19	-	mΩ
Short Circuit Current	ISC	VI= 35V, TA =+25 °C		-	250	-	mA
Peak Current	IPK	Tj=+25°℃		-	2.2	-	Α

#### Note:

# **Electrical Characteristics (MC7818A)**

(Refer to the test circuits. 0°C < TJ < 125°C, I<sub>0</sub> =1A, V I = 27V, C I=0.33µF, C O=0.1µF, unless otherwise specified)

Parameter	Symbol	Co	onditions	Min.	Тур.	Max.	Unit
		TJ =+25 °C		17.64	18	18.36	
Output Voltage	Vo		$I_{O} = 5mA \text{ to } 1A, P_{O} \le 15W$ VI = 21V to 33V		18	18.7	V
		VI= 21V to 33 IO = 500mA	VI= 21V to 33V IO = 500mA		15	180	
Line Regulation (Note1)	Regline	VI= 21V to 33	3V	-	5	180	mV
		TJ =+25 °C	VI= 20.6V to 33V	-	15	180	
		15 = +25 C	VI= 24V to 30V	-	5	90	
Load Regulation (Note1)		T <sub>J</sub> =+25 <sup>°</sup> C IO = 5mA to 7	TJ =+25 <sup>°</sup> C IO = 5mA to 1.5A		15	100	
	Regload	$I_{O} = 5mA$ to 1.0A		-	15	100	mV
		IO = 250mA to 750mA		-	7	50	
Quiescent Current	lQ	TJ =+25 °C		-	5.2	6.0	mA
		VI = 21V to 3	3V, TJ=+25 <sup>°</sup> C	-	-	0.8	
Quiescent Current Change	ΔlQ	VI = 21V to 3	3V, I <u>O</u> = 500mA	-	-	0.8	mA
		IO = 5mA to 7	1.0A	-	-	0.5	
Output Voltage Drift	$\Delta V / \Delta T$	IO = 5mA		-	-1.0	-	mV/ °C
Output Noise Voltage	VN	f = 10Hz to 1 T <sub>A</sub> =+25 <sup>°</sup> C	00KHz	-	10	-	μV/Vo
Ripple Rejection	RR	f = 120Hz, IO = 500mA VI = 22V to 32V		-	57	-	dB
Dropout Voltage	VDrop	IO = 1A, TJ =+25°C		-	2.0	-	V
Output Resistance	rO	f = 1KHz		-	19	-	mΩ
Short Circuit Current	ISC	VI= 35V, TA :	=+25°C	-	250	-	mA
Peak Current	lрк	Tj=+25 °C		-	2.2	-	A

#### Note:

## **Electrical Characteristics (MC7824A)**

(Refer to the test circuits. 0°C < TJ < 125°C, I<sub>0</sub> =1A, V I = 33V, C I=0.33µF, C O=0.1µF, unless otherwise specified)

Parameter	Symbol	Co	onditions	Min.	Тур.	Max.	Unit
		TJ =+25 °C		23.5	24	24.5	
Output Voltage	Vo	IO = 5mA  to  T $V_I = 27.3V \text{ to } T$		23	24	25	V
		VI= 27V to 38 IO = 500mA	VI= 27V to 38V IO = 500mA		18	240	
Line Regulation (Note1)	Regline	VI= 21V to 33	3V	-	6	240	mV
		TJ =+25 °C	VI= 26.7V to 38V	-	18	240	
		1J=+25 C	VI= 30V to 36V	-	6	120	
Load Regulation (Note1)		T <sub>J</sub> =+25 °C IO = 5mA to 7	TJ =+25 °C IO = 5mA to 1.5A		15	100	
	Regload	IO = 5mA to 1.0A IO = 250mA to 750mA		-	15	100	mV
				-	7	50	
Quiescent Current	lq	TJ =+25 °C		-	5.2	6.0	mA
		VI = 27.3V to	38V, TJ =+25 °C	-	-	0.8	
Quiescent Current Change	$\Delta I_Q$	VI = 27.3V to	38V, IO = 500mA	-	-	0.8	mA
		IO = 5mA to 7	1.0A	-	-	0.5	
Output Voltage Drift	$\Delta V / \Delta T$	IO = 5mA		-	-1.5	-	mV/ °C
Output Noise Voltage	VN	f = 10Hz to 1 T <sub>A</sub> = 25 °C	00KHz	-	10	-	μV/Vo
Ripple Rejection	RR	f = 120Hz, IO VI = 28V to 3		-	54	-	dB
Dropout Voltage	VDrop	IO = 1A, TJ =+25 °C		-	2.0	-	V
Output Resistance	rO	f = 1KHz		-	20	-	mΩ
Short Circuit Current	ISC	VI= 35V, TA :	=+25 <sup>°</sup> C	-	250	-	mA
Peak Current	IPK	Tj=+25 °C		-	2.2	-	A

#### Note:



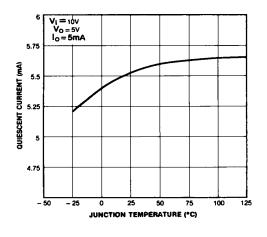


Figure 1. Quiescent Current

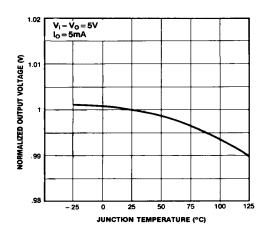


Figure 3. Output Voltage

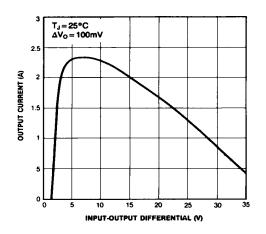


Figure 2. Peak Output Current

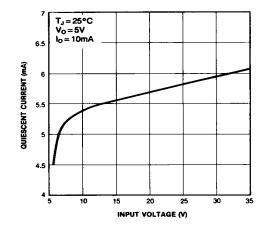
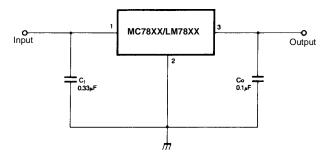
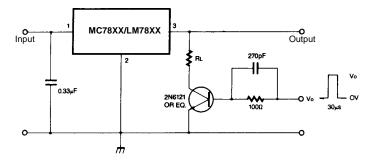


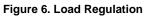
Figure 4. Quiescent Current

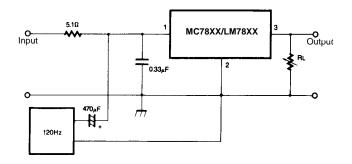
# **Typical Applications**













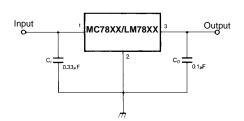


Figure 8. Fixed Output Regulator

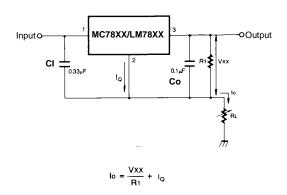
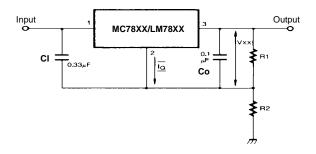


Figure 9. Constant Current Regulator

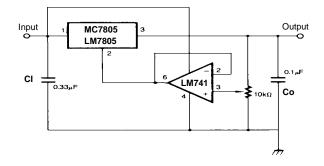
#### Notes:

- (1) To specify an output voltage. substitute voltage value for "XX." A common ground is required between the input and the Output voltage. The input voltage must remain typically 2.0V above the output voltage even during the low point on the input ripple voltage.
- (2) CI is required if regulator is located an appreciable distance from power Supply filter.
- (3) Co improves stability and transient response.



I<sub>RI</sub>≥5IQ

 $V_O = V_{XX}(1+R_2/R_1) + I_QR_2 \label{eq:VO}$  Figure 10. Circuit for Increasing Output Voltage



$$\label{eq:VO} \begin{split} & I_{RI} \geq 5 \ I_Q \\ & V_O = V_{XX}(1+R_2/R_1) + I_QR_2 \\ & \mbox{Figure 11. Adjustable Output Regulator (7 to 30V)} \end{split}$$

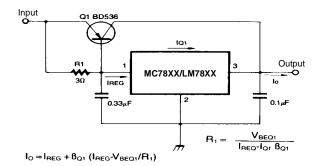


Figure 12. High Current Voltage Regulator

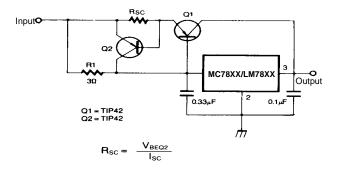


Figure 13. High Output Current with Short Circuit Protection

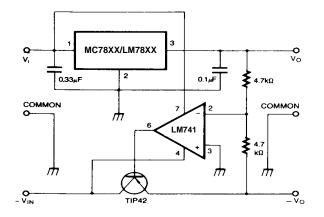


Figure 14. Tracking Voltage Regulator

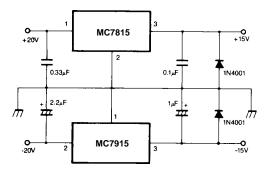


Figure 15. Split Power Supply ( ±15V-1A)

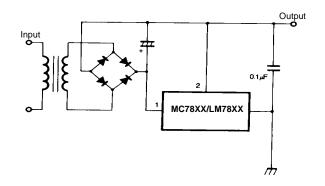


Figure 16. Negative Output Voltage Circuit

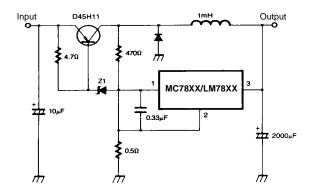
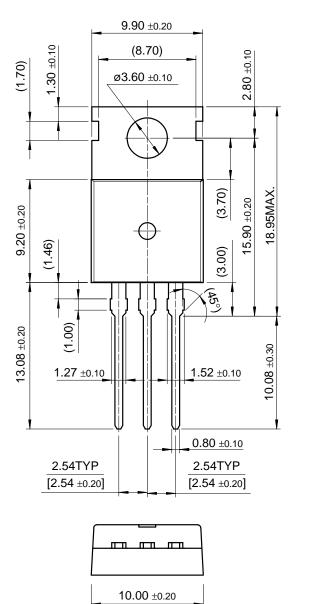
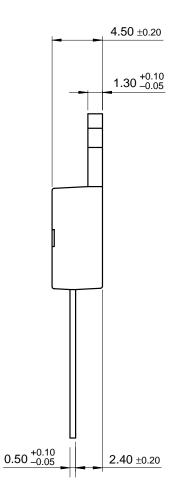


Figure 17. Switching Regulator

### **Mechanical Dimensions**

### Package

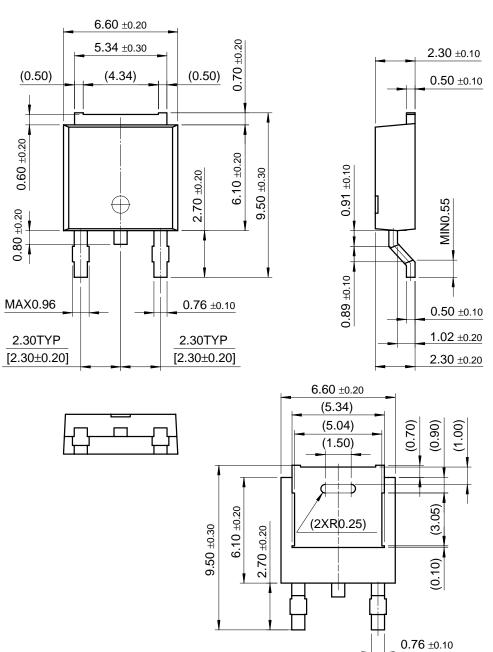




**TO-220** 

### Mechancal Dimensions (Continued)

### Package



**D-PAK** 

# **Ordering Information**

Product Number	Output Voltage Tolerance	Package	Operating Temperature
LM7805CT	±4%	TO-220	0 ~ + 125°C

Product Number	Output Voltage Tolerance	Package	Operating Temperature
MC7805CT			
MC7806CT			
MC7808CT			
MC7809CT			
MC7810CT		TO-220	
MC7812CT			
MC7815CT			
MC7818CT	±4%		
MC7824CT			
MC7805CDT			
MC7806CDT		D-PAK	
MC7808CDT			0 ~ + 125°C
MC7809CDT			0~+125 0
MC7810CDT			
MC7812CDT			
MC7805ACT			
MC7806ACT			
MC7808ACT			
MC7809ACT			
MC7810ACT	±2%	TO-220	
MC7812ACT	]		
MC7815ACT	]		
MC7818ACT			
MC7824ACT			

#### DISCLAIMER

FAIRCHILD SEMICONDUCTOR RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. FAIRCHILD DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENSE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

#### LIFE SUPPORT POLICY

FAIRCHILD'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF THE PRESIDENT OF FAIRCHILD SEMICONDUCTOR CORPORATION. As used herein:

- Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury of the user.
- A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

www.fairchildsemi.com

Fairchild Semiconductor		-ſ	ric   <u>Cross Reference</u>
find productsProducts groupsAnalog and MixedSignalDiscreteInterfaceLogicMicrocontrollersNon-VolatileMemoryOptoelectronicsMarkets andapplicationsNew productsProduct selection andparametric searchCross-referencesearchtechnical informationbuy productstechnical supportmy Fairchildcompany	Home >> Find products >>         MC7805         3-Terminal 1A Positive Voltage Regulator         Contents         General description   Features   Product         status/pricing/packaging   Application notes         General description         The MC78XX/LM78XX/MC78XXA series of three-terminal positive regulators are available in the TO-220/D-PAK package and with several fixed output voltages, making them useful in a wide range of applications. Each type employs internal current limiting, thermal shut-down and safe operating area protection, making it essentially in destructible. If adequate heat sinking is provided, they can deliver over 1A output current. Although designed primarily as fixed voltage regulators, these devices can be used with external components to obtain adjustable voltages and currents.	Image: stateProductDatasheetDownload thisdatasheetPDFe-mail this datasheet[E-This pagePrint version	teolders and Annites
	back to top		

Features

- Output Current up to 1A
- Output Voltages of 5, 6, 8, 9, 10, 12, 15, 18, 24V
- Thermal Overload Protection
- Short Circuit Protection
- Output Transistor Safe Operating Area Protection

### back to top

Product status/pricing/packaging

	Product	Product status	Package type	Leads	Packing method
1			,	,	,

MC7805CT	Full Production	TO-220	3	RAIL
MC7805CDTX	Full Production	TO-252(DPAK)	2	TAPE REEL
MC7805CDTXM	Full Production	TO-252(DPAK)	2	TAPE REEL

back to top

Application notes

AN-4108: AN-4108 A Fairchild Power Switch based on Switched Mode Power Supply for CRT Monitor Use (256 K) Jul 19, 2002

back to top

<u>Home</u> | <u>Find products</u> | <u>Technical information</u> | <u>Buy products</u> | <u>Support</u> | <u>Company</u> | <u>Contact us</u> | <u>Site index</u> | <u>Privacy policy</u>

© Copyright 2002 Fairchild Semiconductor

riouder rolder i alternite 1710	ine / 005/1 / 10ddet information		
Fairchild Semiconductor		sSEARCH   <u>Paramet</u>	ric   Cross Reference
		snace Product	t Folders and Annlica
find products			
find products  Products groups  Analog and Mixed Signal Discrete Interface Logic Microcontrollers Non-Volatile Memory Optoelectronics Markets and applications New products Product selection and parametric search  technical information buy products technical support	Home >> Find products >>         MC7805A         Product information         Contents         General description   Features   Product         status/pricing/packaging         General description         The MC78XX/LM78XX/MC78XXA series of three-terminal positive regulators are available in the TO-220/D-PAK package and with several fixed output voltages, making them useful in a wide range of applications. Each type employs internal current limiting, thermal shut-down and safe operating area protection, making it essentially in destructible. If adequate heat sinking is provided, they can         deliver over 1A output current. Although designed primarily as fixed voltage regulators, these devices can be used with external	Datasheet Download this datasheet PDF e-mail this datasheet [E- This pagePrint version	Related Links  Request samples  Dotted line How to order products  Dotted line Product Change Notices (PCNs)  Dotted line Support  Dotted line Distributor and field sales representatives  Dotted line Quality and reliability  Dotted line Design tools
	components to obtain adjustable voltages and currents.		
my Fairchild			
company	back to top		

Features

- Output Current up to 1A
- Output Voltages of 5, 6, 8, 9, 10, 12, 15, 18, 24V
- Thermal Overload Protection
- Short Circuit Protection
- Output Transistor Safe Operating Area Protection

### back to top

Product status/pricing/packaging

Product	Product status	Package type	Leads	Packing method

MC7805ACT	Full Production	TO-220	3	RAIL
MC7805ACTBU	Full Production	TO-220	3	BULK

back to top

<u>Home</u> | <u>Find products</u> | <u>Technical information</u> | <u>Buy products</u> | <u>Support</u> | <u>Company</u> | <u>Contact us</u> | <u>Site index</u> | <u>Privacy policy</u>

© Copyright 2002 Fairchild Semiconductor

Fairchild Semiconductor		sSEARCH   <u>Parame</u>	etric   Cross Reference
		space Produc	et Folders and Annlica
find products	Home >> Find products >>		
Products groups Analog and Mixed Signal Discrete Interface Logic Microcontrollers	MC7806 3-Terminal 1A Positive Voltage Regulator Contents <u>General description   Features   Product</u> <u>status/pricing/packaging</u>	Datasheet Download this datasheet PDF	Related Links Request samples Dotted line How to order products Dotted line Product Change Notices (PCNs)
Non-Volatile <u>Memory</u> <u>Optoelectronics</u> <u>Markets and</u> <u>applications</u>	General description The MC78XX/LM78XX/MC78XXA series of three-terminal positive regulators are available	e-mail this datasheet	Dotted line Support Dotted line Distributor and field sales representatives
New products Product selection and parametric search Cross-reference search	in the TO-220/D-PAK package and with several fixed output voltages, making them useful in a wide range of applications. Each type employs internal current limiting, thermal shut-down and safe operating area protection, making it essentially in destructible. If	This page <u>Print version</u>	Quality and reliability Dotted line Design tools
technical information	adequate heat sinking is provided, they can deliver over 1A output current. Although		
buy products	designed primarily as fixed voltage regulators, these devices can be used with external	· · · ·	•
technical support	components to obtain adjustable voltages and	-	
my Fairchild	currents.		
company	back to top		

Features

- Output Current up to 1A
- Output Voltages of 5, 6, 8, 9, 10, 12, 15, 18, 24V
- Thermal Overload Protection
- Short Circuit Protection
- Output Transistor Safe Operating Area Protection

### back to top

Product status/pricing/packaging

Product	Product status	Package type	Leads	Packing method
		,		

MC7806CDTXM	Full Production	TO-252(DPAK)	2	TAPE REEL
MC7806CDTX	Full Production	TO-252(DPAK)	2	TAPE REEL
MC7806CT	Full Production	TO-220	3	RAIL

back to top

<u>Home</u> | <u>Find products</u> | <u>Technical information</u> | <u>Buy products</u> | <u>Support</u> | <u>Company</u> | <u>Contact us</u> | <u>Site index</u> | <u>Privacy policy</u>

© Copyright 2002 Fairchild Semiconductor

Fairchild Semiconductor		sSEARCH   Parametr	ric   Cross Reference
		space Product	Folders and Applica
find products	<u>Home</u> >> <u>Find products</u> >>		
find products Products groups Analog and Mixed Signal Discrete Interface Logic Microcontrollers Non-Volatile Memory Optoelectronics Markets and applications New products Product selection and parametric search Cross-reference search technical information buy products technical support my Fairchild	Home>> End products >>MC7806AProduct informationContentsGeneral description   Features   Productstatus/pricing/packagingGeneral descriptionThe MC78XX/LM78XX/MC78XXA series ofthree-terminal positive regulators are availablein the TO-220/D-PAK package and withseveral fixed output voltages, making themuseful in a wide range of applications. Eachtype employs internal current limiting, thermalshut-down and safe operating area protection,making it essentially in destructible. Ifadequate heat sinking is provided, they candeliver over 1A output current. Althoughdesigned primarily as fixed voltage regulators,these devices can be used with externalcomponents to obtain adjustable voltages andcurrents.	Datasheet Download this datasheet PDF e-mail this datasheet [E- This pagePrint version	Related Links  Request samples  Dotted line How to order products  Dotted line Product Change Notices (PCNs)  Dotted line Support  Dotted line Distributor and field sales representatives  Dotted line Quality and reliability  Dotted line Design tools
company	back to top		

Features

- Output Current up to 1A
- Output Voltages of 5, 6, 8, 9, 10, 12, 15, 18, 24V
- Thermal Overload Protection
- Short Circuit Protection
- Output Transistor Safe Operating Area Protection

### back to top

Product status/pricing/packaging

Product	Product status	Package type	Leads	Packing method

MC7806ACTBU	Full Production	TO-220	3	BULK
MC7806ACT	Full Production	TO-220	3	RAIL

back to top

<u>Home</u> | <u>Find products</u> | <u>Technical information</u> | <u>Buy products</u> | <u>Support</u> | <u>Company</u> | <u>Contact us</u> | <u>Site index</u> | <u>Privacy policy</u>

© Copyright 2002 Fairchild Semiconductor

Fairchild Semiconductor		s <mark>SEARCH   <u>Parame</u></mark>	etric   Cross Reference
		space Produc	et Folders and Applica
find products	Home >> Find products >>		
Products groups Analog and Mixed	MC7808 3-Terminal 1A Positive Voltage Regulator		Related Links
Analog and Mixed Signal Discrete Interface Logic	Contents <u>General description</u>   <u>Features</u>   <u>Product</u> <u>status/pricing/packaging</u>	Datasheet Download this datasheet	Request samples Dotted line How to order products Dotted line Product Change Notices
Microcontrollers Non-Volatile Memory	General description	PDF e-mail this datasheet	(PCNs) Dotted line Support Dotted line Distributor and field sales
Optoelectronics Markets and applications	The MC78XX/LM78XX/MC78XXA series of three-terminal positive regulators are available	[E- This page <u>Print version</u>	representatives
<u>New products</u> <u>Product selection and</u> parametric search	in the TO-220/D-PAK package and with several fixed output voltages, making them useful in a wide range of applications. Each		Quality and reliability Dotted line Design tools
<u>Cross-reference</u> <u>search</u>	type employs internal current limiting, thermal shut-down and safe operating area protection, making it essentially in destructible. If		
technical information	adequate heat sinking is provided, they can deliver over 1A output current. Although		
buy products	designed primarily as fixed voltage regulators, these devices can be used with external		•
technical support	components to obtain adjustable voltages and	-	
my Fairchild	currents.		
company	- back to top		

- Output Current up to 1A
- Output Voltages of 5, 6, 8, 9, 10, 12, 15, 18, 24V
- Thermal Overload Protection
- Short Circuit Protection
- Output Transistor Safe Operating Area Protection

#### back to top

Pro	oduct	Product status	Package type	Leads	Packing method
·		,	,	,	*

MC7808CDTXM	Full Production	TO-252(DPAK)	2	TAPE REEL
MC7808CT	Full Production	TO-220	3	RAIL
MC7808CDTX	Full Production	TO-252(DPAK)	2	TAPE REEL

<u>Home</u> | <u>Find products</u> | <u>Technical information</u> | <u>Buy products</u> | <u>Support</u> | <u>Company</u> | <u>Contact us</u> | <u>Site index</u> | <u>Privacy policy</u>

	ine / ooor / floadet information		
Fairchild Semiconductor		sSEARCH   <u>Paramet</u>	ric   Cross Reference
		space Product	Folders and Annlica
find products			
Products groups Analog and Mixed Signal Discrete Interface Logic Microcontrollers Non-Volatile Memory Optoelectronics Markets and applications New products Product selection and parametric search Cross-reference search technical information	Home >> Find products >>         MC7808A         Product information         Contents         General description   Features   Product.status/pricing/packaging         General description         The MC78XX/LM78XX/MC78XXA series of three-terminal positive regulators are available in the TO-220/D-PAK package and with several fixed output voltages, making them useful in a wide range of applications. Each type employs internal current limiting, thermal shut-down and safe operating area protection, making it essentially in destructible. If adequate heat sinking is provided, they can deliver over 1A output current. Although designed primarily as fixed voltage regulators,	Datasheet Download this datasheet PDF e-mail this datasheet [E- This pagePrint version	Related Links Request samples Datted line How to order products Datted line Product Change Notices (PCNs) Datted line Support Datted line Distributor and field sales representatives Datted line Quality and reliability Datted line Design tools
technical support	components to obtain adjustable voltages and		
my Fairchild	currents.		
company			
	back to top		

- Output Current up to 1A
- Output Voltages of 5, 6, 8, 9, 10, 12, 15, 18, 24V
- Thermal Overload Protection
- Short Circuit Protection
- Output Transistor Safe Operating Area Protection

## back to top

Product	Product status	Package type	Leads	Packing method

MC7808ACT	Full Production	TO-220	3	RAIL
MC7808ACTBU	Full Production	TO-220	3	BULK

<u>Home</u> | <u>Find products</u> | <u>Technical information</u> | <u>Buy products</u> | <u>Support</u> | <u>Company</u> | <u>Contact us</u> | <u>Site index</u> | <u>Privacy policy</u>

Fairchild Semiconductor		sSEARCH   <u>Paramet</u>	ric   Cross Reference
		space Produc	t Folders and Annlica
find products	<u>Home</u> >> <u>Find products</u> >>		
Products groups	MC7809		Related Links
Analog and Mixed	3-Terminal 1A Positive Voltage Regulator		Request samples
Signal	Contents	Datasheet	Dotted line
Discrete	General description   Features   Product	Download this	How to order products
Interface	status/pricing/packaging	<u>datasheet</u>	Product Change Notices
<u>Logic</u> Microcontrollers		PDF	(PCNs)
Non-Volatile			Dotted line Support
Memory	General description	e-mail this datasheet	Dotted line
Optoelectronics		[E-	Distributor and field sales
Markets and	The MC78XX/LM78XX/MC78XXA series of		representatives
applications	three-terminal positive regulators are available	This pagePrint version	Dotted line
New products	in the TO-220/D-PAK package and with	This page <u>r thit version</u>	Quality and reliability Dotted line
Product selection and	several fixed output voltages, making them		Design tools
parametric search	useful in a wide range of applications. Each type employs internal current limiting, thermal		
Cross-reference	shut-down and safe operating area protection,		
search	making it essentially in destructible. If		
technical information	adequate heat sinking is provided, they can deliver over 1A output current. Although		
buy products	designed primarily as fixed voltage regulators, these devices can be used with external		
technical support	components to obtain adjustable voltages and	-	
my Fairchild	currents.		
company			
<u>_</u>	back to top		

- Output Current up to 1A
- Output Voltages of 5, 6, 8, 9, 10, 12, 15, 18, 24V
- Thermal Overload Protection
- Short Circuit Protection
- Output Transistor Safe Operating Area Protection

#### back to top

Pro	oduct	Product status	Package type	Leads	Packing method
·		,	,	,	*

MC7809CDTXM	Full Production	TO-252(DPAK)	2	TAPE REEL
MC7809CDTX	Full Production	TO-252(DPAK)	2	TAPE REEL
MC7809CT	Full Production	TO-220	3	RAIL

<u>Home</u> | <u>Find products</u> | <u>Technical information</u> | <u>Buy products</u> | <u>Support</u> | <u>Company</u> | <u>Contact us</u> | <u>Site index</u> | <u>Privacy policy</u>

Fairchild Semiconductor		sSEARCH   <u>Parametr</u>	ric   Cross Reference
		space Product	Folders and Annlica
find products			
find products Products groups Analog and Mixed Signal Discrete Interface Logic Microcontrollers Non-Volatile Memory Optoelectronics Markets and applications New products Product selection and parametric search Cross-reference search technical information buy products technical support	Home >> Find products >>         MC7809A         Product information         Contents         General description   Features   Product         status/pricing/packaging         General description         The MC78XX/LM78XX/MC78XXA series of         three-terminal positive regulators are available         in the TO-220/D-PAK package and with         several fixed output voltages, making them         useful in a wide range of applications. Each         type employs internal current limiting, thermal         shut-down and safe operating area protection,         making it essentially in destructible. If         adequate heat sinking is provided, they can         deliver over 1A output current. Although         designed primarily as fixed voltage regulators,         these devices can be used with external         components to obtain adjustable voltages and	Datasheet Download this datasheet PDF e-mail this datasheet [E- This pagePrint version	Related Links Request samples Dotted line How to order products Dotted line Product Change Notices (PCNs) Dotted line Support Dotted line Distributor and field sales representatives Dotted line Quality and reliability Dotted line Design tools
my Fairchild	currents.		
company	back to top		

- Output Current up to 1A
- Output Voltages of 5, 6, 8, 9, 10, 12, 15, 18, 24V
- Thermal Overload Protection
- Short Circuit Protection
- Output Transistor Safe Operating Area Protection

# back to top

Product	Product status	Package type	Leads	Packing method

MC7809ACT	Full Production	TO-220	3	RAIL
MC7809ACTBU	Full Production	TO-220	3	BULK

<u>Home</u> | <u>Find products</u> | <u>Technical information</u> | <u>Buy products</u> | <u>Support</u> | <u>Company</u> | <u>Contact us</u> | <u>Site index</u> | <u>Privacy policy</u>

Fairchild Semiconductor		-f	ric   Cross Reference
		space Produc	t Folders and Annlica
find products	<u>Home</u> >> <u>Find products</u> >>		
Products groups	MC7810		Related Links
Analog and Mixed	3-Terminal 1A Positive Voltage Regulator		Request samples
<u>Signal</u>	Contents	Datasheet	Dotted line
Discrete	General description   Features   Product	Download this	How to order products
Interface	status/pricing/packaging	datasheet	Product Change Notices
<u>Logic</u> Microcontrollers		PDF	(PCNs)
Non-Volatile			Dotted line
Memory	General description	e-mail this datasheet	Support Dotted line
Optoelectronics		[E-	Distributor and field sales
Markets and	The MC78XX/LM78XX/MC78XXA series of		representatives
applications	three-terminal positive regulators are available	This pagePrint version	Dotted line
New products	in the TO-220/D-PAK package and with	This page <u>r thit version</u>	Quality and reliability
Product selection and	several fixed output voltages, making them		Design tools
parametric search	useful in a wide range of applications. Each type employs internal current limiting, thermal		
Cross-reference search	shut-down and safe operating area protection,		
<u>search</u>	making it essentially in destructible. If		
technical information	adequate heat sinking is provided, they can		
buy products	deliver over 1A output current. Although designed primarily as fixed voltage regulators,		
	- these devices can be used with external		
technical support	components to obtain adjustable voltages and	_	
my Fairchild	currents.		
company			
L	back to top		

- Output Current up to 1A
- Output Voltages of 5, 6, 8, 9, 10, 12, 15, 18, 24V
- Thermal Overload Protection
- Short Circuit Protection
- Output Transistor Safe Operating Area Protection

#### back to top

Product	Product status	Package type	Leads	Packing method
		,	,	

MC7810CDTX	Full Production	TO-252(DPAK)	2	TAPE REEL
MC7810CDTXM	Full Production	TO-252(DPAK)	2	TAPE REEL

<u>Home</u> | <u>Find products</u> | <u>Technical information</u> | <u>Buy products</u> | <u>Support</u> | <u>Company</u> | <u>Contact us</u> | <u>Site index</u> | <u>Privacy policy</u>

Fairchild Semiconductor		sSEARCH   <u>Paramet</u>	ric   Cross Reference
		space Produc	t Folders and Applica
find products	Home >> Find products >>		
find products Products groups Analog and Mixed Signal Discrete Interface Logic Microcontrollers Non-Volatile Memory Optoelectronics Markets and applications New products Product selection and parametric search Cross-reference search technical information buy products technical support	Home>> End products >>         MC7812         3-Terminal 1A Positive Voltage Regulator         Contents         General description   Features   Product         status/pricing/packaging         General description         The MC78XX/LM78XX/MC78XXA series of three-terminal positive regulators are available in the TO-220/D-PAK package and with several fixed output voltages, making them useful in a wide range of applications. Each type employs internal current limiting, thermal shut-down and safe operating area protection, making it essentially in destructible. If adequate heat sinking is provided, they can deliver over 1A output current. Although designed primarily as fixed voltage regulators, these devices can be used with external components to obtain adjustable voltages and	Datasheet Download this datasheet PDF e-mail this datasheet [E- This pagePrint version	Related Links Request samples Datted line How to order products Datted line Product Change Notices (PCNs) Datted line Distributor and field sales representatives Datted line Quality and reliability Datted line Design tools
my Fairchild	currents.		
company	back to top		

- Output Current up to 1A
- Output Voltages of 5, 6, 8, 9, 10, 12, 15, 18, 24V
- Thermal Overload Protection
- Short Circuit Protection
- Output Transistor Safe Operating Area Protection

#### back to top

Pro	oduct	Product status	Package type	Leads	Packing method
·		,	,	,	*

MC7812CDTXM	Full Production	TO-252(DPAK)	2	TAPE REEL
MC7812CDTX	Full Production	TO-252(DPAK)	2	TAPE REEL
MC7812CT	Full Production	TO-220	3	RAIL

<u>Home</u> | <u>Find products</u> | <u>Technical information</u> | <u>Buy products</u> | <u>Support</u> | <u>Company</u> | <u>Contact us</u> | <u>Site index</u> | <u>Privacy policy</u>

	The for 24 Troduct mornation		
Fairchild Semiconductor		sSEARCH   <u>Parametr</u>	ric   Cross Reference
		space Product	t Folders and Annlica
find products	<u>Home</u> >> <u>Find products</u> >>		
find products  Products groups Analog and Mixed Signal Discrete Interface Logic Microcontrollers Non-Volatile Memory Optoelectronics Markets and applications New products Product selection and parametric search Cross-reference search technical information buy products technical support my Fairchild	Home >> Find products >>MC7812AProduct informationContentsGeneral description   Features   Productstatus/pricing/packagingGeneral descriptionThe MC78XX/LM78XX/MC78XXA series ofthree-terminal positive regulators are availablein the TO-220/D-PAK package and withseveral fixed output voltages, making themuseful in a wide range of applications. Eachtype employs internal current limiting, thermalshut-down and safe operating area protection,making it essentially in destructible. Ifadequate heat sinking is provided, they candeliver over 1A output current. Althoughdesigned primarily as fixed voltage regulators,these devices can be used with externalcomponents to obtain adjustable voltages andcurrents.	Datasheet Download this datasheet PDF e-mail this datasheet [E- This pagePrint version	Related Links  Request samples  Datted Line How to order products  Datted Line Product Change Notices (PCNs)  Datted Line Support Datted Line Distributor and field sales representatives Datted Line Quality and reliability Datted Line Design tools
company	back to top		

- Output Current up to 1AOutput Voltages of 5, 6, 8, 9, 10, 12, 15, 18, 24V
- Thermal Overload Protection
- Short Circuit Protection
- Output Transistor Safe Operating Area Protection

## back to top

	Product	Product status	Package type	Leads	Packing method
·		*	,		

MC7812ACT	Full Production	TO-220	3	RAIL
MC7812ACTBU	Full Production	TO-220	3	BULK

<u>Home</u> | <u>Find products</u> | <u>Technical information</u> | <u>Buy products</u> | <u>Support</u> | <u>Company</u> | <u>Contact us</u> | <u>Site index</u> | <u>Privacy policy</u>

Tioduct Policer - Partennia 171	WC /815A - Floduct miorination		
Fairchild Semiconductor		s <mark>SEARCH   <u>Paramet</u></mark>	ric   Cross Reference
	Home >> Find products >>	space Produc	t Folders and Annlica
find products			
Products groups	MC7815A Product information		Related Links
Analog and Mixed	1 Todaet mormation		Request samples
<u>Signal</u>	Contents	Datasheet	Dotted line
Discrete	General description   Features   Product	Download this	How to order products
Interface	status/pricing/packaging	datasheet	Product Change Notices
Logic		PDF	(PCNs)
<u>Microcontrollers</u>			Dotted line
<u>Non-Volatile</u> Memory	General description		<u>Support</u>
Optoelectronics		e-mail this datasheet	Dotted line Distributor and field sales
Markets and		[E-	representatives
applications	The MC78XX/LM78XX/MC78XXA series of		Dotted line
New products	three-terminal positive regulators are available in the TO-220/D-PAK package and with	This pagePrint version	Quality and reliability
Product selection and	several fixed output voltages, making them		Dotted line
parametric search	useful in a wide range of applications. Each		Design tools
Cross-reference	type employs internal current limiting, thermal		
search	shut-down and safe operating area protection,		
	making it essentially in destructible. If		
technical information	adequate heat sinking is provided, they can deliver over 1A output current. Although		
buy products	designed primarily as fixed voltage regulators, these devices can be used with external	• •	
technical support	components to obtain adjustable voltages and	-	
my Fairchild	currents.		
company	-		
<u>_</u>	back to top		

- Output Current up to 1A
- Output Voltages of 5, 6, 8, 9, 10, 12, 15, 18, 24V
- Thermal Overload Protection
- Short Circuit Protection
- Output Transistor Safe Operating Area Protection

## back to top

	Product	Product status	Package type	Leads	Packing method
·		*	,		

MC7815ACT	Full Production	TO-220	3	RAIL
MC7815ACTBU	Full Production	TO-220	3	BULK

<u>Home</u> | <u>Find products</u> | <u>Technical information</u> | <u>Buy products</u> | <u>Support</u> | <u>Company</u> | <u>Contact us</u> | <u>Site index</u> | <u>Privacy policy</u>