

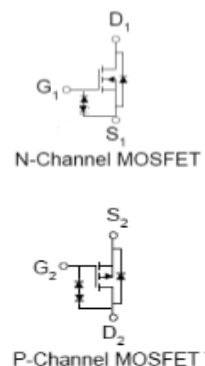
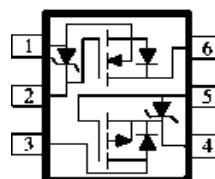
These miniature surface mount MOSFETs utilize a high cell density trench process to provide low $r_{DS(on)}$ and to ensure minimal power loss and heat dissipation. Typical applications are DC-DC converters and power management in portable and battery-powered products such as computers, printers, PCMCIA cards, cellular and cordless telephones.

- Low $r_{DS(on)}$ provides higher efficiency and extends battery life
- Low thermal impedance copper leadframe SC70-6 saves board space
- Fast switching speed
- High performance trench technology

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
30	0.09 @ $V_{GS} = 4.5V$	1.5
	0.18 @ $V_{GS} = 2.5V$	1.1
-30	0.21 @ $V_{GS} = -4.5V$	-1.0
	0.29 @ $V_{GS} = -2.5V$	-0.9



RoHS
COMPLIANT
HALOGEN
FREE



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)				
Parameter		Symbol	N-Channel	P-Channel
Drain-Source Voltage		V_{DS}	30	-30
Gate-Source Voltage		V_{GS}	8	-8
Continuous Drain Current ^a	$T_A = 25^\circ\text{C}$	I_D	1.5	1
	$T_A = 70^\circ\text{C}$		1.3	0.8
Pulsed Drain Current ^b		I_{DM}	0.7	-1.2
Continuous Source Current (Diode Conduction) ^a		I_S	0.25	-0.25
Power Dissipation ^a	$T_A = 25^\circ\text{C}$	P_D	0.3	0.3
	$T_A = 70^\circ\text{C}$		0.21	0.21
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150	

THERMAL RESISTANCE RATINGS				
Parameter		Symbol	Maximum	Units
Maximum Junction-to-Ambient ^a	$t \leq 5$ sec	R_{THJA}	415	$^\circ\text{C/W}$
	Steady-State		460	

Notes

- Surface Mounted on 1" x 1" FR4 Board.
- Pulse width limited by maximum junction temperature

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Gate-Source Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\text{ }\mu\text{A}$ (N-ch)	0.3			V
		$V_{DS} = V_{GS}, I_D = -250\text{ }\mu\text{A}$ (P-ch)	-0.3			V
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0\text{ V}, V_{GS} = \pm 8\text{ V}$			± 10	μA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 8\text{ V}, V_{GS} = 0\text{ V}$ (N-ch)			1	μA
		$V_{DS} = -8\text{ V}, V_{GS} = 0\text{ V}$ (P-ch)			-1	
On-State Drain Current	$I_{D(on)}$	$V_{DS} = 5\text{ V}, V_{GS} = 4.5\text{ V}$ (N-ch)	1.5			A
		$V_{DS} = -5\text{ V}, V_{GS} = -4.5\text{ V}$ (P-ch)	-1.5			A
Drain-Source On-Resistance	$r_{DS(on)}$	$V_{GS} = 4.5\text{ V}, I_D = 1.2\text{ A}$ (N-ch)			90	$\text{m}\Omega$
		$V_{GS} = 2.5\text{ V}, I_D = 0.96\text{ A}$ (N-ch)			180	
		$V_{GS} = -4.5\text{ V}, I_D = -0.8\text{ A}$ (P-ch)			210	$\text{m}\Omega$
		$V_{GS} = -4.5\text{ V}, I_D = -0.64\text{ A}$ (P-ch)			290	
Forward Transconductance	g_{fs}	$V_{DS} = 10\text{ V}, I_D = 1.2\text{ A}$ (N-ch)		3		S
		$V_{DS} = -10\text{ V}, I_D = -0.8\text{ A}$ (P-ch)		5		S
Diode Forward Voltage	V_{SD}	$I_S = 0.2\text{ A}, V_{GS} = 0\text{ V}$ (N-ch)		0.65		V
		$I_S = -1.2\text{ A}, V_{GS} = 0\text{ V}$ (P-ch)		-0.66		V
Dynamic						
Total Gate Charge	Q_g	N - Channel $V_{DS} = 10\text{ V}, V_{GS} = 4.5\text{ V}, I_D = 1.2\text{ A}$		5		nC
Gate-Source Charge	Q_{gs}			0.3		
Gate-Drain Charge	Q_{gd}			0.7		
Turn-On Delay Time	$t_{d(on)}$	N - Channel $V_{DD} = 10\text{ V}, R_L = 8.3\text{ }\Omega,$ $I_D = 1.2\text{ A},$ $V_{GEN} = 4.5\text{ V}, R_{GEN} = 6\text{ }\Omega$		8		ns
Rise Time	t_r			13		
Turn-Off Delay Time	$t_{d(off)}$			25		
Fall Time	t_f			8		
Input Capacitance	C_{iss}	N - Channel $V_{DS} = 15\text{ V}, V_{GS} = 0\text{ V}, f = 1\text{ MHz}$		73		pF
Output Capacitance	C_{oss}			25		
Reverse Transfer Capacitance	C_{rss}			20		
Total Gate Charge	Q_g	P - Channel $V_{DS} = -10\text{ V}, V_{GS} = 4.5\text{ V}, I_D = -0.8\text{ A}$		4		nC
Gate-Source Charge	Q_{gs}			0.5		
Gate-Drain Charge	Q_{gd}			0.9		
Turn-On Delay Time	$t_{d(on)}$	P - Channel $V_{DD} = -10\text{ V}, R_L = 12.5\text{ }\Omega,$ $I_D = -0.8\text{ A},$ $V_{GEN} = -4.5\text{ V}, R_{GEN} = 6\text{ }\Omega$		8		ns
Rise Time	t_r			10		
Turn-Off Delay Time	$t_{d(off)}$			28		
Fall Time	t_f			13		
Input Capacitance	C_{iss}	P - Channel $V_{DS} = -15\text{ V}, V_{GS} = 0\text{ V}, f = 1\text{ MHz}$		120		pF
Output Capacitance	C_{oss}			28		
Reverse Transfer Capacitance	C_{rss}			25		

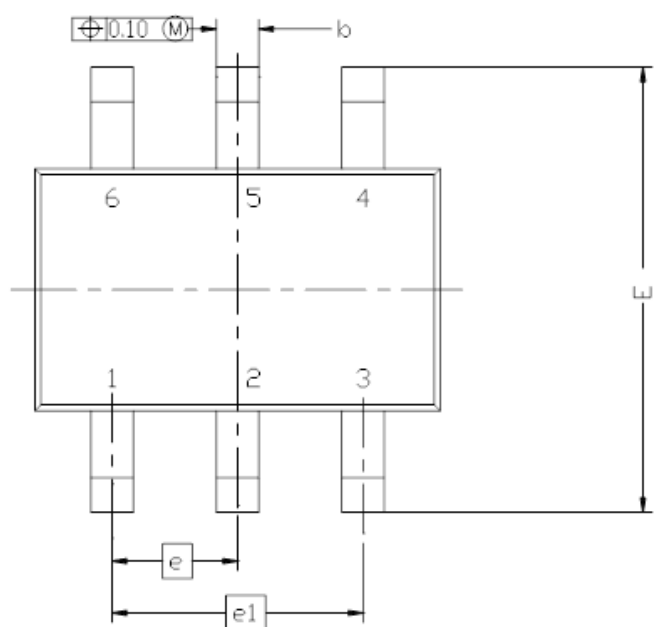
Notes

- Pulse test: $PW \leq 300 \mu s$ duty cycle $\leq 2\%$.
- Guaranteed by design, not subject to production testing.

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Package Information

SC-70: 6LEAD



DIM.	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.900	0.95	1.10	0.035	0.037	0.043
A1	0.00	---	0.10	0.000	---	0.004
A2	0.70	0.90	1.00	0.028	0.035	0.039
b	0.15	0.22	0.30	0.006	0.016	0.012
c	0.08	0.127	0.20	0.003	0.005	0.008
D	2.10 BSC			0.083 BSC		
E	2.30 BSC			0.091 BSC		
E1	1.30 BSC			0.051 BSC		
e	0.65 BSC			0.026 BSC		
e1	1.30 BSC			0.051 BSC		
L	0.26	0.40	0.46	0.010	0.015	0.018
L2	0.254 BSC			0.010 BSC		
R	0.10	---	---	0.004	---	---
θ	0?	4?	8?	0?	4?	8?
$\theta 1$	7?NOM			7?NOM		

