



DUAL SURFACE MOUNT NPN/PNP TRANSISTORS (COMPLIMENTARY)

This device contains two electrically-isolated complimentary pair (NPN and PNP) general-purpose transistors. This device is ideal for portable applications where board space is at a premium.

FEATURES

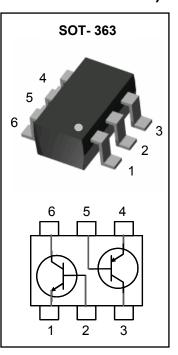
- Electrically-Isolated Complimentary Transistor Pairs
- In compliance with EU RoHS 2002/95/EC directives

APPLICATIONS

- General Purpose Amplifier Applications
- Hand-Held Computers, PDAs

Device Marking Code: 47P

MAXIMUM RATINGS - NPN



 T_J = 25°C Unless otherwise noted

Rating	Symbol	Value	Units
Collector-Base Voltage	V _{CBO}	50	V
Collector-Emitter Voltage	V _{CEO}	45	V
Emitter-Base Voltage Voltage	V _{EBO}	6.0	V
Collector Current	Ic	100	mA

MAXIMUM RATINGS - PNP

 T_J = 25°C Unless otherwise noted

Rating	Symbol	Value	Units
Collector-Base Voltage	V _{CBO}	-50	V
Collector-Emitter Voltage	V _{CEO}	-45	V
Emitter-Base Voltage Voltage	V _{EBO}	-5.0	V
Collector Current	I _C	-100	mA

THERMAL CHARACTERISTICS

Characteristic	Symbol	Value	Units
Total Power Dissipation (Note 1)	P _D	200	mW
Operating Junction Temperature Range	TJ	-55 to +150	°C
Storage Temperature Range	Tstg	-55 to +150	°C
Thermal Resistance, Junction to Ambient (Note 1)	R _{thja}	556	°C/W

Note 1. FR-4 board 70 x 60 x 1mm with minimum recommended pad layout





NPN ELECTRICAL CHARACTERISTICS (Note 2)

T_J = 25°C Unless otherwise noted

Parameter	Symbol	Conditions	Min	Тур	Max	Units
Collector-Emitter Breakdown Voltage	€V _{(BR)CEO}	I _C = 10mA	45	-	-	V
Collector-Emitter Breakdown Voltag	V _{(BR)CES}	I _C = 10uA, V _{EB} = 0	50	-	-	V
Collector-Base Breakdown Voltage	V _{(BR)CBO}	I _C = 10uA	50	-	-	V
Emitter-Base Breakdown Voltage	V _{(BR)EBO}	I _E = 1.0uA	6.0	-	-	V
Collector Cutoff Current I_{CBO} V_{CB} = 30V, I_{E} = 0 T_{J} =150°C	-	-	15	nA		
	$T_{\rm J} = 150^{\circ}{\rm C}$	-	-	5	uA	
Emitter Cutoff Current	I _{EBO}	V _{EB} = 5V, I _C = 0	-	-	100	nA
DC Current Gain	h _{FE}	V _{CE} = 5V, I c= 2.0mA	200	-	450	-
Collector-Emitter Saturation Voltage	VCE(SAT)	$I_C = 10 \text{mA}, I_B = 0.5 \text{mA}$	-	-	0.1	V
		$I_C = 100 \text{mA}, I_B = 5 \text{mA}$	-	-	0.4	V
Base-Emitter Saturation Voltage	V _{BE(SAT)}	I _C = 10mA, I _B = 0.5mA	-	0.75	-	V
Base-Emitter Voltage	V_{BE}	V _{CE} = 5V, I c= 2.0mA	0.58	-	0.7	V
Gain-Bandwidth Product	f _T	V _{CE} = 5V, I c= 10mA f = 100MHz	100	-	-	MHz
Collector-Base Capacitance	Ссво	V _{CB} = 10V, f =1.0MHz	-	-	1.5	pF
Emitter-Base Capacitance	Сево	V _{EB} = 0.5V, f =1.0MHz	-	7	1	pF

PNP ELECTRICAL CHARACTERISTICS (Note 2)

T = 25°C Unless otherwise noted

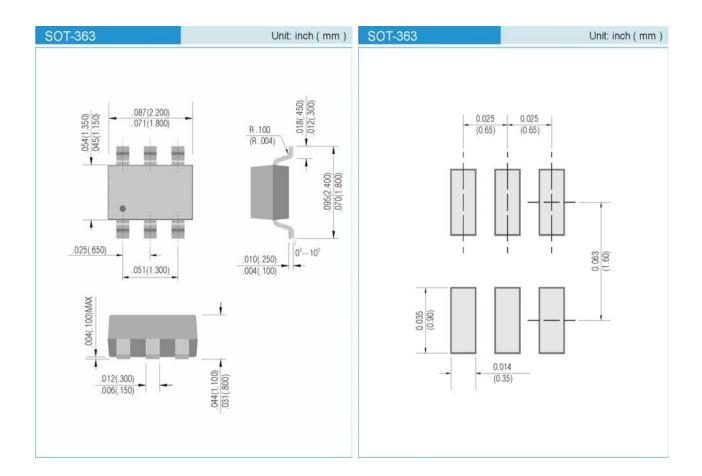
THE ELECTRICAL CHARACTERISTICS (Note 2)						
Parameter	Symbol	Conditions	Min	Тур	Max	Units
Collector-Emitter Breakdown Voltag	€V _{(BR)CEO}	I _C = -10mA	-45	-	-	V
Collector-Emitter Breakdown Voltag	V _{(BR)CES}	I _C = -10uA, V _{EB} = 0	-50	-	-	V
Collector-Base Breakdown Voltage	V _{(BR)CBO}	I _C = -10uA	-50	-	-	V
Emitter-Base Breakdown Voltage	V _{(BR)EBO}	I _E = -1.0uA	-5.0	-	-	V
Collector Cutoff Current	І _{СВО}	V _{CB} = -30V, I _E = 0 T _J =150°C	-	-	-15	nA
			-	-	-4.0	uA
Emitter Cutoff Current	I _{EBO}	V _{EB} = -5V, I _C = 0	-	-	-100	nA
DC Current Gain	h _{FE}	V _{CE} = -5V, I c= -2.0mA	200	-	475	
Collector-Emitter Saturation Voltage	VCE(SAT)	$I_C = -10 \text{mA}, I_B = -0.5 \text{mA}$	-	-	-0.3	V
		$I_C = -100 \text{mA}, I_B = -5 \text{mA}$	-	-	-0.65	V
Base-Emitter Saturation Voltage	V _{BE(SAT)}	I _C = -10mA, I _B = -0.5mA	-	-0.7	-	V
Base-Emitter Voltage	V _{BE}	V _{CE} = -5V, I c= -2.0mA	-0.6	-	-0.75	V
Gain-Bandwidth Product	f _T	V _{CE} = -5V, I c= -10mA f = 100MHz	100	•	-	MHz
Collector-Base Capacitance	Ссво	V _{CB} = -10V, f =1.0MHz	-	-	4.5	pF
Emitter-Base Capacitance	Сево	V _{EB} = -0.5V, f =1.0MHz	-	11	-	pF

Note 2. Short duration test pulse used to minimize self-heating





PACKAGE LAYOUT AND SUGGESTED PAD DIMENSIONS



ORDERING INFORMATION

BC847BPN T/R7 - 3,000 units per 7 inch reel

BC847BPN T/R13 -10,000 units per 13 inch reel

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