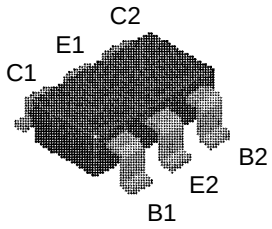
FAIRCHILD SEMICONDUCTOR TM

Discrete Power & Signal Technologies

FMB3946



Package: SuperSOT-6
Device Marking: **.002**
Note: The " **.** " (dot) signifies Pin 1
Transistor 1 is NPN device,
transistor 2 is PNP device.

NPN & PNP Complementary Dual Transistor
SuperSOT-6 Surface Mount Package

This complementary dual device was designed for use as a general purpose amplifier and switch. The useful dynamic range extends to 100mA as a switch and to 100MHz as an amplifier. Sourced from Process 23 (NPN) and Process 66 (PNP).

Absolute Maximum Ratings* T_A = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{CEO}	Collector-Emitter Voltage	40	V
V_{CBO}	Collector-Base Voltage	40	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current	200	mA
$T_{J,\ Tstg}$	Operating and Storage Junction Temperature Range	-55 to +150	°C

*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

NOTES:
1) These ratings are based on a maximum junction temperature of 150°C.

2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

Thermal Characteristics T_A = 25°C unless otherwise noted

Symbol	Characteristics	Max	Units
P_D	Total Device Dissipation Derate above 25°C	700 5.6	mW mW/°C
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	180	°C/W

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NPN & PNP Complementary Dual Transistor
(continued)

Electrical Characteristics T_A = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
OFF CHARACTERISTICS					
BV_{CEO}	Collector to Emitter Voltage	Ic = 1.0 mA	40		V
BV_{CBO}	Collector to Base Voltage	Ic = 10 uA	40		V
BV_{EBO}	Emitter to Base Voltage	Ie = 10 uA	5		V
I_{CBO}	Collector Cutoff Current	Vcb = 30 V		50	nA
I_{EBO}	Emitter Cutoff Current	Veb = 4.0 V		50	nA
ON CHARACTERISTICS					
h_{FE}	DC Current Gain	Vce = 1V, Ic = 100uA Vce = 1V, Ic = 1.0mA Vce = 1V, Ic = 10mA Vce = 1V, Ic = 50mA Vce = 1V, Ic = 100mA	40 70 100 60 30		-
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	Ic = 10mA, Ib = 1mA		0.25	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	Ic = 10mA, Ib = 1mA		0.9	V

SMALL SIGNAL CHARACTERISTICS				TYP		
C_{OB}	Output Capacitance	Vcb = 5V, f = 1MHz		3		pF
C_{IB}	Input Capacitance	Veb = 0.5V, f = 1MHz		7		pF
f_T	Current Gain - Bandwidth Product	Vce = 20V, Ic = 10mA, f = 100MHz		450		MHz
NF	Noise Figure	Vce = 5V, Ic = 100uA, Rs = 1kohms, f = 10Hz to 15.7kHz		2.5		dB

SWITCHING CHARACTERISTICS				TYP		
t_d	Delay Time	Vcc = 3V, Vbe = 0.5V, Ic = 10 mA, Ib1 = 1 mA		18		ns
t_r	Rise Time			20		ns
t_s	Storage Time	Vcc = 3V,Ic = 10 mA, Ib1 = Ib2 = 1 mA		150		ns
t_f	Fall Time			40		ns

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