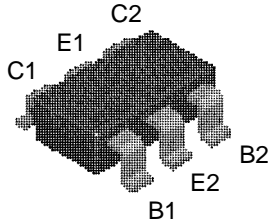


FMB3946



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 _{CB0}	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	mW
		5.6	mW/°C
R _{θJA}	Thermal Resistance, Junction to Ambient	180	°C/W

NPN & PNP Complementary Dual Transistor
(continued)

Electrical Characteristics $T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
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OFF CHARACTERISTICS

BV_{CEO}	Collector to Emitter Voltage	$I_c = 1.0 \text{ mA}$	40		V
BV_{CBO}	Collector to Base Voltage	$I_c = 10 \text{ uA}$	40		V
BV_{EBO}	Emitter to Base Voltage	$I_e = 10 \text{ uA}$	5		V
I_{CBO}	Collector Cutoff Current	$V_{cb} = 30 \text{ V}$		50	nA
I_{EBO}	Emitter Cutoff Current	$V_{eb} = 4.0 \text{ V}$		50	nA

ON CHARACTERISTICS

h_{FE}	DC Current Gain	$V_{ce} = 1\text{V}, I_c = 100\text{uA}$ $V_{ce} = 1\text{V}, I_c = 1.0\text{mA}$ $V_{ce} = 1\text{V}, I_c = 10\text{mA}$ $V_{ce} = 1\text{V}, I_c = 50\text{mA}$ $V_{ce} = 1\text{V}, I_c = 100\text{mA}$	40 70 100 60 30		-
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_c = 10\text{mA}, I_b = 1\text{mA}$		0.25	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_c = 10\text{mA}, I_b = 1\text{mA}$		0.9	V

SMALL SIGNAL CHARACTERISTICS

TYP

C_{OB}	Output Capacitance	$V_{cb} = 5\text{V}, f = 1\text{MHz}$		3	pF
C_{IB}	Input Capacitance	$V_{eb} = 0.5\text{V}, f = 1\text{MHz}$		7	pF
f_T	Current Gain - Bandwidth Product	$V_{ce} = 20\text{V}, I_c = 10\text{mA}, f = 100\text{MHz}$		450	MHz
NF	Noise Figure	$V_{ce} = 5\text{V}, I_c = 100\text{uA}, R_s = 1\text{kohms}, f = 10\text{Hz to } 15.7\text{kHz}$		2.5	dB

SWITCHING CHARACTERISTICS

TYP

t_d	Delay Time	$V_{cc} = 3\text{V}, V_{be} = 0.5\text{V}, I_c = 10 \text{ mA}, I_{b1} = 1 \text{ mA}$		18	ns
t_r	Rise Time			20	ns
t_s	Storage Time	$V_{cc} = 3\text{V}, I_c = 10 \text{ mA}, I_{b1} = I_{b2} = 1 \text{ mA}$		150	ns
t_f	Fall Time			40	ns