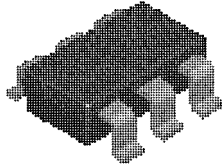


**FMB1020**



Package: SuperSOT-6

Device Marking: **.004**

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 dual complementary device was designed for use as a general purpose amplifier applications at collector currents to 300mA. Sourced from Process 10 (NPN ) and Process 68 (PNP).

**Absolute Maximum Ratings\***

T<sub>A</sub> = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V <sub>CEO</sub>	Collector-Emitter Voltage	45	V
V <sub>CBO</sub>	Collector-Base Voltage	60	V
V <sub>EBO</sub>	Emitter-Base Voltage	6	V
I <sub>C</sub>	Collector Current	500	mA
T <sub>J</sub> , T <sub>STG</sub>	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<sub>A</sub> = 25°C unless otherwise noted

Symbol	Characteristics	Max	Units
P <sub>D</sub>	Total Device Dissipation, total per side	700 350	mW
R <sub>θJA</sub>	Thermal Resistance, Junction to Ambient, total	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
<b>OFF CHARACTERISTICS</b>					
$V_{CE0}$	Collector to Emitter Voltage	$I_c = 1.0 \text{ mA}$	45		V
$V_{CB0}$	Collector to Base Voltage	$I_c = 10 \text{ uA}$	60		V
$V_{EB0}$	Emitter to Base Voltage	$I_e = 10 \text{ uA}$	6		V
$I_{CBO}$	Collector Cutoff Current	$V_{cb} = 50 \text{ V}$		50	nA
$I_{CES}$	Collector Cutoff Current	$V_{ce} = 40 \text{ V}$		50	nA
$I_{EBO}$	Emitter Cutoff Current	$V_{eb} = 4 \text{ V}$		50	nA
<b>ON CHARACTERISTICS</b>					
$h_{FE}$	DC Current Gain	$V_{ce} = 1\text{V}, I_c = 100\text{uA}$ $V_{ce} = 1\text{V}, I_c = 10\text{mA}$ $V_{ce} = 1\text{V}, I_c = 100\text{mA}$ $V_{ce} = 5\text{V}, I_c = 150\text{mA}$	80 100 100 100	450 350	-
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_c = 10\text{mA}, I_b = 1\text{mA}$ $I_c = 200\text{mA}, I_b = 20\text{mA}$		0.2 0.4	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_c = 10\text{mA}, I_b = 1\text{mA}$ $I_c = 200\text{mA}, I_b = 20\text{mA}$		0.85 1.0	V
<b>SMALL SIGNAL CHARACTERISTICS</b>					
			<b>TYP</b>		
$C_{OB}$	Output Capacitance	$V_{cb} = 10\text{V}, f = 1\text{MHz}$		4.5	pF
$f_T$	Current Gain - Bandwidth Product	$V_{ce} = 20\text{V}, I_c = 20\text{mA}, f = 100\text{MHz}$		300	MHz
NF	Noise Figure	$V_{ce} = 5\text{V}, I_c = 100\text{uA},$ $R_s = 2\text{kohms}, f = 1 \text{ kHz}$		2.5	dB