MD8001
MD8002
MD8003

CASE 654-07, STYLE 1

DUAL AMPLIFIER TRANSISTOR

NPN SILICON

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Refer to 2N2920 for graphs.

MAXIMUM RATINGS

Rating	Symbol	Value		Unit
Collector-Emitter Voltage MD8001 MD8002 MD8003	V_{CEO}	40 50 60		Vdc
Collector Current — Continuous	I_C	30		mAdc
		One Die	Both Die Equal Power	
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	575 3.29	625 3.57	mW mW/°C
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D	1.8 10.3	2.5 14.3	Watts mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	−65 to +200		°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	One Die Max	Both Die Equal Power Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	97	70	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$(1)	304	280	°C/W
		Junction to Ambient	Junction to Case	
Coupling Factor		84	44	%

(1) $R_{\theta JA}$ is measured with the device soldered into a typical printed circuit board.

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted.)

Characteristic		Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Collector-Emitter Breakdown Voltage(2) (I_C = 10 mAdc, I_B = 0)	MD8001 MD8002 MD8003	$V_{(BR)CEO}$	 40 50 60	 — — —	 — — —	Vdc
Collector Cutoff Current (V_{CB} = 40 Vdc, I_E = 0)		I_{CBO}	—	—	50	nAdc
Emitter Cutoff Current (V_{EB} = 4.0 Vdc, I_C = 0)		I_{EBO}	—	—	50	nAdc
ON CHARACTERISTICS						
DC Current Gain (I_C = 1.0 mAdc, V_{CE} = 10 Vdc)		h_{FE}	100	200	—	—
SMALL-SIGNAL CHARACTERISTICS						
Current-Gain — Bandwidth Product(2) (I_C = 5.0 mAdc, V_{CE} = 10 Vdc, f = 100 MHz)		f_T	—	260	—	MHz
Output Capacitance (V_{CB} = 10 Vdc, I_E = 0, f = 100 kHz)		C_{obo}	—	2.6	—	pF
Input Capacitance (V_{BE} = 2.0 Vdc, I_C = 0, f = 100 kHz)		C_{ibo}	—	2.3	—	pF
MATCHING CHARACTERISTICS						
Base-Emitter Voltage Differential (I_C = 1.0 mAdc, V_{CE} = 10 Vdc)		$\lvert V_{BE1}-V_{BE2}\rvert$	—	—	15	mVdc

(2) Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%.