

MAXIMUM RATINGS

Rating	Symbol	Value		Unit
Collector-Emitter Voltage	V _{CEO}	30		Vdc
Collector-Base Voltage	V _{CBO}	50		Vdc
Emitter-Base Voltage	V _{EBO}	5.0		Vdc
Collector Current — Continuous	I _C	500		mAdc
		One Die	Both Die	
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	Both Die	Unit
Thermal Resistance, Junction to Case	R _{θJC}	97	70	°C/W
Thermal Resistance, Junction to Ambient	R _{θJA} (1)	304	280	°C/W
		Junction to Ambient	Junction to Case	
Coupling Factor		84	44	%

(1) R_{θJA} 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)	V _{(BR)CEO}	30	—	—	Vdc
Collector-Base Breakdown Voltage (I _C = 10 μAdc, I _E = 0)	V _{(BR)CBO}	50	—	—	Vdc
Emitter-Base Breakdown Voltage (I _E = 10 μAdc, I _C = 0)	V _{(BR)EBO}	5.0	—	—	Vdc
Collector Cutoff Current (V _{CB} = 40 Vdc, I _E = 0)	I _{CBO}	—	—	100	nAdc
ON CHARACTERISTICS					
DC Current Gain(2) (I _C = 1.0 mAdc, V _{CE} = 10 Vdc) (I _C = 150 mAdc, V _{CE} = 10 Vdc) (I _C = 300 mAdc, V _{CE} = 10 Vdc)	h _{FE}	40 70 30	60 80 50	— — —	—
Collector-Emitter Saturation Voltage (I _C = 150 mAdc, I _B = 15 mAdc)	V _{CE(sat)}	—	0.2	0.4	Vdc
Base-Emitter Saturation Voltage (I _C = 150 mAdc, I _B = 15 mAdc)	V _{BE(sat)}	—	0.95	1.3	Vdc
SMALL-SIGNAL CHARACTERISTICS					
Current-Gain — Bandwidth Product (I _C = 20 mAdc, V _{CE} = 20 Vdc, f = 100 MHz)	f _T	200	250	—	MHz
Output Capacitance (V _{CB} = 10 Vdc, I _E = 0, f = 100 kHz)	C _{obo}	—	3.5	8.0	pF
Input Capacitance (V _{EB} = 2.0 Vdc, I _C = 0, f = 100 kHz)	C _{iBo}	—	15	30	pF

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

MD7000

CASE 654-07, STYLE 1

**DUAL
GENERAL PURPOSE
TRANSISTOR**

NPN SILICON

Refer to MD2218 for graphs.