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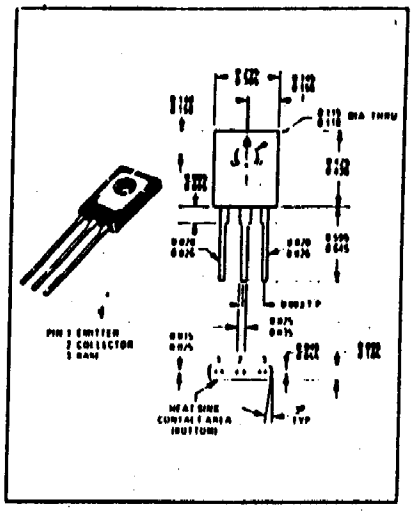
2N 5657 (SILICON)

PLASTIC NPN SILICON HIGH-VOLTAGE POWER TRANSISTORS



*MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	350	Vdc
Collector-Base Voltage	V_{CB}	375	Vdc
Emitter-Base Voltage	V_{EB}	6.0	Vdc
Collector Current - Continuous	I_C	0.5	Adc
Base Current-Continuous	I_B	0.25	Adc
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D	20 0.16	Watts W/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +150	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol		Unit
Thermal Resistance, Junction to Case	θ_{JC}	6.25	°C/W

*Indicates JEDEC Registered Data

*ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector Emitter Sustaining Voltage (I_C = 100 mAdc (inductive), L = 50 mH)	$V_{CEO(sus)}$	350		Vdc
Collector Emitter Breakdown Voltage (I_C = 1.0 mAdc, I_B = 0)	BV_{CEO}	350	--	Vdc
Collector Cutoff Current (V_{CE} = 250 Vdc, I_B = 0)	I_{CEO}	-	0.1	mAdc
Collector Cutoff Current (V_{CB} = 350 Vdc, $V_{EB(off)}$ = 1.5 Vdc) (V_{CE} = 250 Vdc, $V_{EB(off)}$ = 1.5 Vdc, T_C = 100°C)	I_{CEX}	- -	0.1 1.0	mAdc
Collector Cutoff Current (V_{CB} = 375 Vdc, I_E = 0)	I_{CBO}	-	10	μAdc
Emitter Cutoff Current (V_{EB} = 6.0 Vdc, I_C = 0)	I_{EBO}		10	μAdc
ON CHARACTERISTICS				
DC Current Gain (1) (I_C = 50 mAdc, V_{CE} = 10 Vdc) (I_C = 100 mAdc, V_{CE} = 10 Vdc) (I_C = 250 mAdc, V_{CE} = 10 Vdc) (I_C = 500 mAdc, V_{CE} = 10 Vdc)	h_{FE}	25 30 15 5.0	250 -	-
Collector Emitter Saturation Voltage (1) (I_C = 100 mAdc, I_B = 10 mAdc) (I_C = 250 mAdc, I_B = 25 mAdc) (I_C = 500 mAdc, I_B = 100 mAdc)	$V_{CE(sat)}$		1.0 2.5 10	Vdc
Base Emitter Voltage (1) (I_C = 100 mAdc, V_{CE} = 10 Vdc)	V_{BE}		1.0	Vdc
DYNAMIC CHARACTERISTICS				
Current Gain - Bandwidth Product (2) (I_C = 50 mAdc, V_{CE} = 10 Vdc, f = 10 MHz)	f_T	10		MHz
Output Capacitance (V_{CB} = 10 Vdc, I_E = 0, f = 100 kHz)	C_{ob}		20	pF
Small Signal Current Gain (I_C = 100 mAdc, V_{CE} = 10 Vdc, f = 1.0 kHz)	h_{fe}	20		

*Indicates JEDEC Registered Data for 2N5655 Series.
(1) Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%
(2) f_T is defined as the frequency at which $|h_{fe}|$ extrapolates to unity.

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