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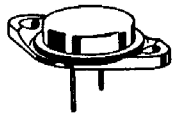
2N6377 thru 2N6379

HIGH-POWER PNP SILICON TRANSISTORS

. . . designed for use in industrial-military power amplifier and switching circuit applications.

- High Collector Emitter Sustaining Voltage –
  $V_{CEO(sus)}$ = 80 Vdc (Min) – 2N6377
  = 100 Vdc (Min) – 2N6378
  = 120 Vdc (Min) – 2N6379
- High DC Current Gain –
  h_{FE} = 30-120 @ I_C = 20 Adc
  = 10 (Min) @ I_C = 50 Adc
- Low Collector-Emitter Saturation Voltage –
  $V_{CE(sat)}$ = 1.0 Vdc (Max) @ I_C = 20 Adc
- Fast Switching Times @ I_C = 20 Adc
  t_r = 0.35 μs (Max)
  t_s = 0.8 μs (Max)
  t_f = 0.25 μs (Max)

50 AMPERE
POWER TRANSISTORS
PNP SILICON
80, 100, 120 VOLTS
250 WATTS



* MAXIMUM RATINGS

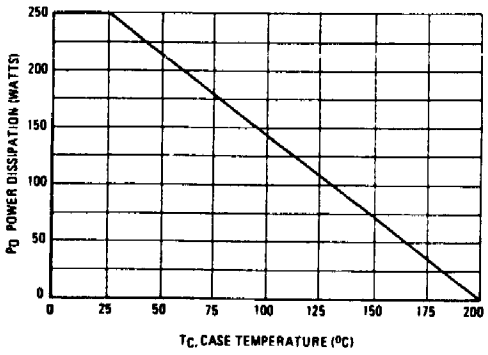
Rating	Symbol	2N6377	2N6378	2N6379	Unit
Collector-Base Voltage	V_{CB}	100	120	140	Vdc
Collector-Emitter Voltage	V_{CEO}	80	100	120	Vdc
Emitter-Base Voltage	V_{EB}	6.0			Vdc
Collector Current – Continuous	I_C	50			Adc
Peak		100			
Base Current	I_B	20			Adc
Total Device Dissipation @ T_C = 25°C	P_D	250			Watts
Derate above 25°C		1.43			W/°C
Operating and Storage Junction Temperature Range	T_J,T_{stg}	-65 to +200			°C

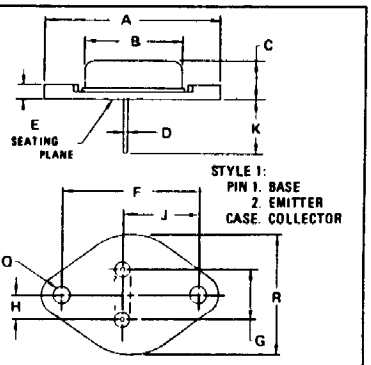
THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	θ_{JC}	0.7	°C/W

*Indicates JEDEC Registered Data.

FIGURE 1 – POWER DERATING





DIM	MILLIMETERS MIN	MILLIMETERS MAX	INCHES MIN	INCHES MAX
A	38.35	39.37	1.510	1.550
B	19.30	21.08	0.760	0.830
C	6.35	7.62	0.250	0.300
D	1.45	1.80	0.057	0.063
E	–	3.43	–	0.135
F	29.90	30.40	1.177	1.197
G	10.67	11.18	0.420	0.440
H	5.21	5.72	0.205	0.225
J	16.64	17.15	0.655	0.675
K	11.18	12.19	0.440	0.480
Q	3.84	4.09	0.151	0.161
R	24.88	26.67	0.980	1.050

Characteristic		Symbol	Min	Max	Unit
***OFF CHARACTERISTICS**					
Collector-Emitter Sustaining Voltage (1)		$V_{CEO(sus)}$			Vdc
(I_C = 50 mAdc, I_B = 0)	2N6377		80	–	
	2N6378		100	–	
	2N6379		120	–	
Collector Cutoff Current		I_{CEO}			μAdc
(V_{CE} = 50 Vdc, I_B = 0)	2N6377		–	50	
(V_{CE} = 60 Vdc, I_B = 0)	2N6378		–	50	
(V_{CE} = 70 Vdc, I_B = 0)	2N6379		–	50	
Collector Cutoff Current		I_{CEX}			
(V_{CE} = 90% Rated V_{CB}, $V_{BE(off)}$ = 1.5 Vdc)			–	10	μAdc
(V_{CE} = 90% Rated V_{CB}, $V_{BE(off)}$ = 1.5 Vdc, T_C = 150°C)			–	1.0	mAdc
Emitter Cutoff Current		I_{EBO}	–	100	μAdc
(V_{EB} = 6.0 Vdc, I_C = 0)					
***ON CHARACTERISTICS** (1)					
DC Current Gain		h_{FE}			–
(I_C = 1.0 Adc, V_{CE} = 4.0 Vdc)			50	–	
(I_C = 20 Adc, V_{CE} = 4.0 Vdc)			30	120	
(I_C = 50 Adc, V_{CE} = 4.0 Vdc)			10	–	
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	–		Vdc
(I_C = 20 Adc, I_B = 2.0 Adc)			–	1.2	
(I_C = 50 Adc, I_B = 10 Adc)			–	3.0	
Base-Emitter Saturation Voltage		$V_{BE(sat)}$			Vdc
(I_C = 20 Adc, I_B = 2.0 Adc)			–	1.8	
(I_C = 50 Adc, I_B = 10 Adc)			–	3.5	
DYNAMIC CHARACTERISTICS					
*Current-Gain – Bandwidth Product (2)		f_T	30	–	MHz
(I_C = 1.0 Adc, V_{CE} = 10 Vdc, f_{test} = 10 MHz)					
*Output Capacitance		C_{ob}	–	1500	pF
(V_{CB} = 10 Vdc, I_E = 0, f = 0.1 MHz)					
***SWITCHING CHARACTERISTICS** (Figure 2)					
Rise Time	(V_{CC} = 80 Vdc, I_C = 20 Adc, I_{B1} = I_{B2} = 2.0 Adc)	t_r	–	0.35	μs
Storage Time		t_s	–	0.80	μs
Fall Time		t_f	–	0.25	μs

*Indicates JEDEC Registered Data.

(1) Pulse Test: Pulse Width = 300 μs, Duty Cycle = 2.0%.

(2) $f_T = |h_{fe}| * f_{test}$