

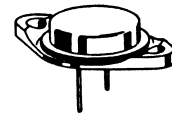
**2N6377  
thru  
2N6379**

**HIGH-POWER PNP SILICON TRANSISTORS**

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

- High Collector-Emitter Sustaining Voltage –  
V<sub>CEO</sub> (sus) = 80 Vdc (Min) – 2N6377  
= 100 Vdc (Min) – 2N6378  
= 120 Vdc (Min) – 2N6379
- High DC Current Gain –  
h<sub>FE</sub> = 30-120 @ I<sub>C</sub> = 20 Adc  
= 10 (Min) @ I<sub>C</sub> = 50 Adc
- Low Collector-Emitter Saturation Voltage –  
V<sub>CE(sat)</sub> = 1.0 Vdc (Max) @ I<sub>C</sub> = 20 Adc
- Fast Switching Times @ I<sub>C</sub> = 20 Adc  
t<sub>r</sub> = 0.35 μs (Max)  
t<sub>s</sub> = 0.8 μs (Max)  
t<sub>f</sub> = 0.25 μs (Max)

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



**\* MAXIMUM RATINGS**

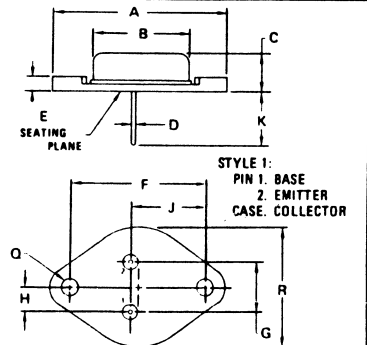
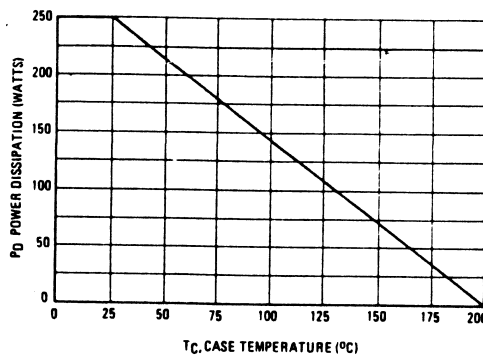
Rating	Symbol	2N6377	2N6378	2N6379	Unit
Collector-Base Voltage	V <sub>CB</sub>	100	120	140	Vdc
Collector-Emitter Voltage	V <sub>CEO</sub>	80	100	120	Vdc
Emitter-Base Voltage	V <sub>EB</sub>	← 6.0 →			Vdc
Collector Current – Continuous	I <sub>C</sub>	← 50 →			A dc
Collector Current – Peak	I <sub>C</sub>	← 100 →			A dc
Base Current	I <sub>B</sub>	← 20 →			A dc
Total Device Dissipation @ T <sub>C</sub> = 25°C	P <sub>D</sub>	← 250 →			Watts
Derate above 25°C		← 1.43 →			W/°C
Operating and Storage Junction Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	← -65 to +200 →			°C

**THERMAL CHARACTERISTICS**

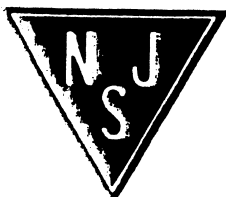
Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	θ <sub>JC</sub>	0.7	°C/W

\*Indicates JEDEC Registered Data.

**FIGURE 1 – POWER DERATING**



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	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	1.60	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	18.64	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	24.89	28.67	0.980	1.050



Characteristic	Symbol	Min	Max	Unit
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**\* OFF CHARACTERISTICS**

Collector-Emitter Sustaining Voltage <sup>(1)</sup> ( $I_C = 50 \text{ mAdc}$ , $I_B = 0$ )	2N6377 2N6378 2N6379	$V_{CE(sus)}$	80 100 120	— — —	Vdc
Collector Cutoff Current ( $V_{CE} = 50 \text{ Vdc}$ , $I_B = 0$ ) ( $V_{CE} = 60 \text{ Vdc}$ , $I_B = 0$ ) ( $V_{CE} = 70 \text{ Vdc}$ , $I_B = 0$ )	2N6377 2N6378 2N6379	$I_{CEO}$	— — —	50 50 50	$\mu\text{Adc}$
Collector Cutoff Current ( $V_{CE} = 90\% \text{ Rated } V_{CB}$ , $V_{BE(off)} = 1.5 \text{ Vdc}$ ) ( $V_{CE} = 90\% \text{ Rated } V_{CB}$ , $V_{BE(off)} = 1.5 \text{ Vdc}$ , $T_C = 150^\circ\text{C}$ )		$I_{CEX}$	— —	10 1.0	$\mu\text{Adc}$ mAdc
Emitter Cutoff Current ( $V_{EB} = 6.0 \text{ Vdc}$ , $I_C = 0$ )		$I_{EBO}$	—	100	$\mu\text{Adc}$

**\* ON CHARACTERISTICS <sup>(1)</sup>**

DC Current Gain ( $I_C = 1.0 \text{ Adc}$ , $V_{CE} = 4.0 \text{ Vdc}$ ) ( $I_C = 20 \text{ Adc}$ , $V_{CE} = 4.0 \text{ Vdc}$ ) ( $I_C = 50 \text{ Adc}$ , $V_{CE} = 4.0 \text{ Vdc}$ )		$h_{FE}$	50 30 10	— 120 —	—
Collector-Emitter Saturation Voltage ( $I_C = 20 \text{ Adc}$ , $I_B = 2.0 \text{ Adc}$ ) ( $I_C = 50 \text{ Adc}$ , $I_B = 10 \text{ Adc}$ )		$V_{CE(sat)}$	— —	1.2 3.0	Vdc
Base-Emitter Saturation Voltage ( $I_C = 20 \text{ Adc}$ , $I_B = 2.0 \text{ Adc}$ ) ( $I_C = 50 \text{ Adc}$ , $I_B = 10 \text{ Adc}$ )		$V_{BE(sat)}$	— —	1.8 3.5	Vdc

**DYNAMIC CHARACTERISTICS**

* Current-Gain – Bandwidth Product <sup>(2)</sup> ( $I_C = 1.0 \text{ Adc}$ , $V_{CE} = 10 \text{ Vdc}$ , $f_{test} = 10 \text{ MHz}$ )		$f_T$	30	—	MHz
* Output Capacitance ( $V_{CB} = 10 \text{ Vdc}$ , $I_E = 0$ , $f = 0.1 \text{ MHz}$ )		$C_{ob}$	—	1500	pF

**\* SWITCHING CHARACTERISTICS (Figure 2)**

Rise Time	$V_{CC} = 80 \text{ Vdc}$ , $I_C = 20 \text{ Adc}$ , $I_{B1} = I_{B2} = 2.0 \text{ Adc}$	$t_r$	—	0.35	$\mu\text{s}$
Storage Time		$t_s$	—	0.80	$\mu\text{s}$
Fall Time		$t_f$	—	0.25	$\mu\text{s}$

\* Indicates JEDEC Registered Data.

(1) Pulse Test: Pulse Width = 300  $\mu\text{s}$ , Duty Cycle = 2.0%.

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