NEW ENGLAND SEMICONDUCTOR

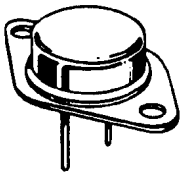
2N6377
2N6378
2N6379

HIGH-POWER PNP SILICON POWER 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 = 0.80 µs (Max)
  t_f = 0.25 µs (Max)
- Complement to 2N6474 - 77

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



TO-3

MAXIMUM RATINGS(1)

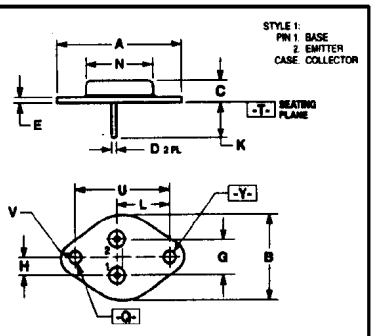
Rating	Symbol	2N6377	2N6378	2N6379	Unit
Collector-Base Voltage	V_{CB}	100	120	140	Vdc
Collector-Emitter Voltage	V_{CEO}	80	100	120	Vdc
Emitter-Base Voltage	V_{EB}	6.0			Vdc
Collector Current - Continuous - Peak	I_C	50 100			Adc
Base Current	I_B	20			Adc
Total Power Dissipation @T_C = 25°C Derate above 25°C	P_D	250 1.43			Watts 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

(1) Indicates JEDEC Registration Data

MECHANICAL OUTLINE



DIM	MILLIMETER MIN	MILLIMETER MAX	INCHES MIN	INCHES MAX
A	38.86 REF		1.530 REF	
B	25.15	26.67	0.990	0.340
C	6.35	8.51	0.250	0.034
D	1.45	1.60	0.057	0.063
E	1.53	1.77	0.60	0.070
G	10.92 BSC		0.430 BSC	
H	5.46 BSC		0.215 BSC	
K	11.18	12.19	0.440	0.480
L	16.89 BSC		0.665 BSC	
N	19.31	21.08	0.760	0.830
Q	3.84	4.19	0.151	0.165
U	30.15 BSC		1.187 BSC	
V	3.33	4.77	0.131	0.188

FIGURE 1 - POWER DERATING

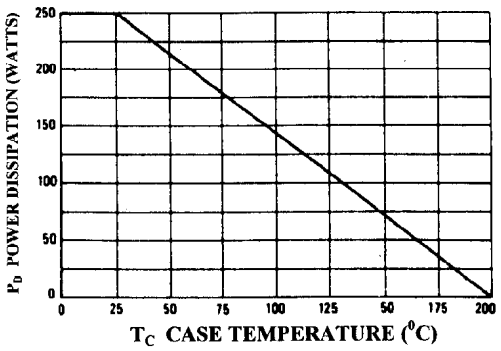
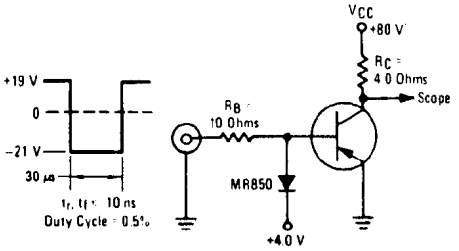


FIGURE 2 - SWITCHING TIMES TEST CIRCUIT



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6 Lake Street Lawrence, MA 01841
1-800-446-1158 / (978) 794-1666 / FAX: (978) 689-0803

T4-4.8-860-353 REV: --

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

Characteristics		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}			µAdc
V_{EB} = 6.0 Vdc, I_C = 0				100	
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)		fT	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

(1)Pulse Test: Pulse Width = 300µs, Duty Cycle = 2.0%. (2) $fT = |h_{fe}| \bullet f_{test}$

FIGURE 3 - TURN ON TIME

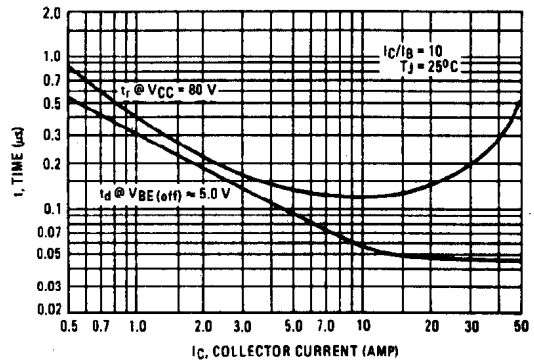
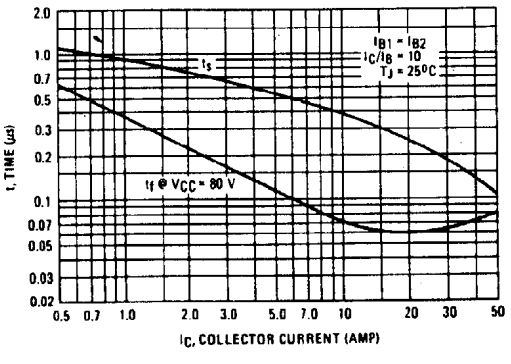


FIGURE 4 - TURN OOF TIME



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