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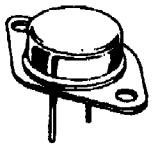
COMPLEMENTARY SILICON HIGH-POWER TRANSISTORS

General-purpose power amplifier and switching applications

PNP	NPN
2N5875	2N5877
2N5876	2N5878

10 AMPERE COMPLEMENTARY SILICON POWER TRANSISTORS 60 - 80 Volts 150 Watts

FEATURES:
* Low Collector-Emitter Saturation Voltage - $V_{CE(SAT)}$=1.0V(Max.)@I_C=5.0A
* Execllent DC Current Gain - hFE = 20 ~ 100 @ I_C = 4.0 A



TO-3

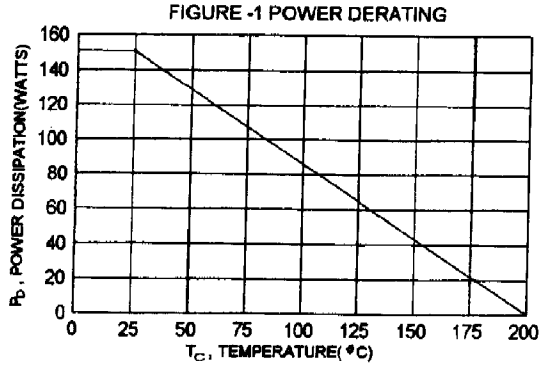
MAXIMUM RATINGS

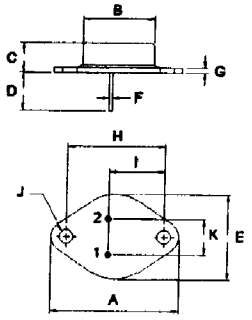
Characteristic	Symbol	2N5875 2N5877	2N5876 2N5878	Unit
Collector-Emitter Voltage	V_{CEO}	60	80	V
Collector-Base Voltage	V_{CBO}	60	80	V
Emitter-Base Voltage	V_{EBO}	5.0		V
Collector Current-Continuous -Peak	I_C I_{CM}	10 20		A
Base Current	I_B	4.0		A
Total Power Dissipation@T_C=25°C Derate above 25°C	P_D	150 0.857		W 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	Rθjc	1.17	°C/W

FIGURE -1 POWER DERATING





PIN 1.BASE
2.EMITTER
COLLECTOR(CASE)

DIM	MILLIMETERS	
	MIN	MAX
A	38.75	39.96
B	19.28	22.23
C	7.96	9.28
D	11.18	12.19
E	25.20	26.67
F	0.92	1.09
G	1.38	1.62
H	29.90	30.40
I	16.64	17.30
J	3.88	4.36
K	10.67	11.18

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

Characteristic		Symbol	Min	Max	Unit
OFF CHARACTERISTICS					
Collector - Emitter Sustaining Voltage (1) (I_C = 200 mA, I_B = 0)	2N5875, 2N5877 2N5876, 2N5878	$V_{CEO(SUS)}$	60 80		V
Collector Cutoff Current (V_{CE} = 30 V, I_B = 0) (V_{CE} = 40 V, I_B = 0)	2N5875, 2N5877 2N5876, 2N5878	I_{CEO}		1.0 1.0	mA
Collector Cutoff Current (V_{CE} = 60 V, $V_{BE(off)}$ = 1.5 V) (V_{CE} = 80 V, $V_{BE(off)}$ = 1.5 V) (V_{CE} = 60 V, $V_{BE(off)}$ = 1.5 V, T_C = 150°C) (V_{CE} = 80 V, $V_{BE(off)}$ = 1.5 V, T_C = 150°C)	2N5875, 2N5877 2N5876, 2N5878 2N5875, 2N5877 2N5876, 2N5878	I_{CEX}		0.5 0.5 5.0 5.0	mA
Collector Cutoff Current (V_{CB} = 60 V, I_E = 0) (V_{CB} = 80 V, I_E = 0)	2N5875, 2N5877 2N5876, 2N5878	I_{CBO}		0.5 0.5	mA
Emitter Cutoff Current (V_{EB} = 5.0 V , I_C = 0)		I_{EBO}		1.0	mA
ON CHARACTERISTICS (1)					
DC Current Gain (I_C = 1.0 A, V_{CE} = 4.0 V) (I_C = 4.0 A, V_{CE} = 4.0 V) (I_C = 10 A, V_{CE} = 4.0 V)		hFE	35 20 4.0	100	
Collector-Emitter saturation Voltage (I_C = 5.0 A, I_B = 0.5 A) (I_C = 10 A, I_B = 2.5 A)		$V_{CE(sat)}$		1.0 3.0	V
Base-Emitter On Voltage (I_C = 4.0 A, V_{CE} = 4.0 V)		$V_{BE(on)}$		1.5	V
Base-Emitter Saturation Voltage (I_C = 10 A, I_B = 2.5 A)		$V_{BE(sat)}$		2.5	V
DYNAMIC CHARACTERISTICS					
Current-Gain-Bandwidth Product (2) (I_C = 0.5 A, V_{CE} = 10 V, f = 1.0 MHz)		f_T	4.0		MHz
Small-Signal Current Gain (I_C = 1.0 A, V_{CE} = 4.0 V, f = 1.0 KHZ)		h_{fe}	20		

(1) Pulse Test: Pulse width $\leq$ 300 us , Duty Cycle $\leq$ 2.0%

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