

NPN Silicon Power Transistors

D PAK Surface Mount Power Package

The D PAK Power transistor is used by general purpose amplifiers, relay drives, lamp drives, motor drivers, and high speed switching applications.

Features:

- * 150 °C operation junction Temperature
- * Short Heat Sink Tab Manufactured- Not Sheared!
- * Similar in Size to the Industry Standard TO-251 package

Mechanical Characteristic

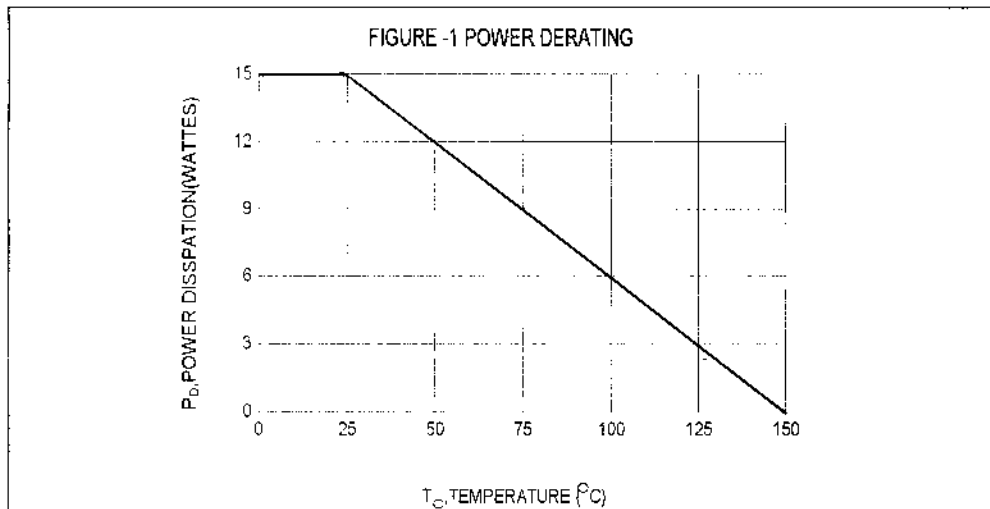
- * Case: Epoxy, Molded
- * Weight: 0.295 grams (approximately)
- * Finish: All External Surface Corrosion Resistant and Terminal

MAXIMUM RATINGS

Characteristic	Symbol	Rating	Unit
Collector-Emitter Voltage	V_{CE0}	50	V
Collector-Base Voltage	V_{CBO}	80	V
Emitter-Base Voltage	V_{EBO}	6.0	V
Collector Current-Continuous	I_C	5.0	A
Base Current	I_B	1.2	A
Total Power Dissipation @ $T_C=25^\circ\text{C}$ Derate above 25 °C	P_D	15 0.12	W W/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	- 65 to + 150	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance Junction to Case	$R\theta_{jc}$	8.04	°C/W



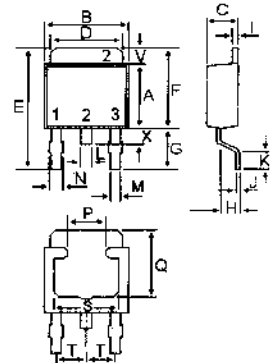
NPN
2SC5706

5 AMPERE
NPN SILICON
POWER TRANSISTOR

50 VOLTS
15 WATTS



TO-252AA (DPAK)



PIN 1. BASE
2. COLLECTOR(CASE)
3. EMITTER

DIM	MILLIMETERS	
	MIN	MAX
A	5.40	5.60
B	6.30	6.70
C	2.20	2.40
D	5.20	5.50
E	9.00	10.00
G	2.40	3.00
H	0.90	1.50
I	0.45	0.55
J	0.45	0.60
K	0.90	1.50
L	0.70	0.80
M	0.50	0.70
N	0.60	0.90
P	2.70	3.10
Q	5.10	5.30
S	4.80	5.00
T	----	2.30
V	1.20	1.40
X	0.90	1.20

ELECTRICAL CHARACTERISTICS ($T_c=25^\circ\text{C}$ unless otherwise notes)

Characteristic	Symbol	Min	typ	Max	Unit
Collector - Emitter Breakdown Voltage ($I_c = 1 \text{ mA}$, $I_B = 0$)	$V_{CEO(BR)}$	50			V
Collector - Base Breakdown Voltage ($I_c = 10 \text{ }\mu\text{A}$, $I_E = 0$)	$V_{CBO(BR)}$	80			V
Collector Cutoff Current ($V_{CB} = 40 \text{ V}$, $I_E = 0$)	I_{CBO}			1.0	μA
Emitter Cutoff Current ($V_{EB} = 4.0 \text{ V}$, $I_c = 0$)	I_{EBO}			1.0	μA

ON CHARACTERISTICS

DC Current Gain ($I_c = 500 \text{ mA}$, $V_{CE} = 2.0 \text{ V}$)	hFE	200		560	
Collector - Emitter Saturation Voltage ($I_c = 1.0 \text{ A}$, $I_B = 50 \text{ mA}$) ($I_c = 2.0 \text{ A}$, $I_B = 100 \text{ mA}$)	$V_{CE(SAT)}$			135 240	mV
Base - Emitter Saturation Voltage ($I_c = 2.0 \text{ A}$, $I_B = 100 \text{ mA}$)	$V_{BE(SAT)}$			1.2	V

DYNAMIC CHARACTERISTICS

Gain-Bandwidth Product ($I_c = 500 \text{ mA}$, $V_{CE} = 10 \text{ V}$)	f_T		400		
Output Capacitance ($V_{CB} = 10 \text{ V}$, $I_E = 0$, $f = 1 \text{ MHz}$)	C_{ob}		20		pF

(1) Pulse Test: Pulse Width = 300 μs , Duty Cycle $\leq 2.0\%$