NPN SILICON POWER TRANSISTOR

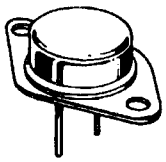
...2N3441 transistor is designed for use in general purpose switching and linear amplifier application requiring high breakdown voltages.

NPN
2N3441

FEATURES
* Driver for High Power Outputs
* Series and Shunt Regulators
* Solenoid and Relay Drivers
* Power Switching Circuits

Boca Semiconductor Corp.
BSC
http://www.bocasemi.com

3 AMPERE
SILICON POWER
TRANSISTORS
140 VOLTS
25 WATTS



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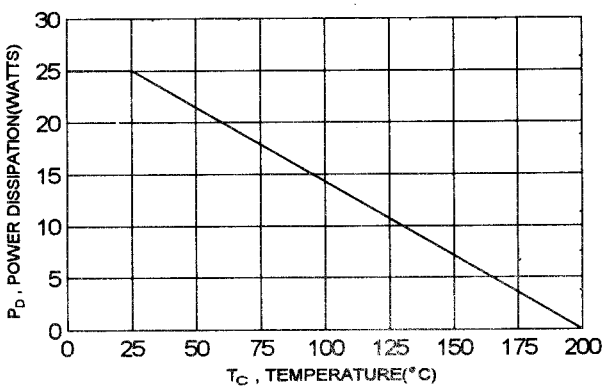
MAXIMUM RATINGS

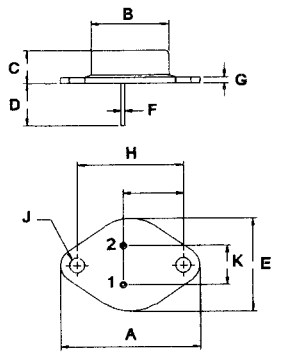
Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V_{CBO}	160	V
Collector-Emitter Voltage	V_{CEO}	140	V
Emitter-Base Voltage	V_{EBO}	7.0	V
Collector Current - Continuous	I_C	3.0	A
Base Current-Continuous	I_B	2.0	A
Total PowerDissipation@T_C=25°C Derate above 25°C	P_D	25 0.142	W W/°C
Operating 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	7.0	°C/W

FIGURE -1 POWER DERATING





PIN 1.BASE
2.EMITTER
COLLECTOR(CASE)

DIM	MILLIMETERS	
	MIN	MAX
A	30.60	32.52
B	13.85	14.16
C	6.54	7.22
D	9.50	10.50
E	17.26	18.46
F	0.76	0.92
G	1.38	1.65
H	24.16	24.78
I	13.84	15.60
J	3.32	3.92
K	4.86	5.34

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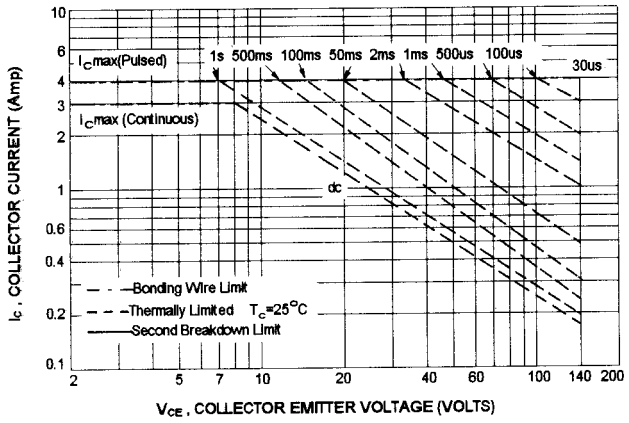
ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Sustaining Voltage(1) (I_C= 50 mA, I_B= 0)	$V_{CEO\ (sus)}$	140		V
Collector Cutoff Current (V_{CE}= 140 V, I_B= 0)	I_{CEO}		50	mA
Collector Cutoff Current (V_{CE}= 140 V, $V_{BE(off)}$= 1.5 V)	I_{CEX}		5.0	mA
Emitter Cutoff Current (V_{EB}= 7.0 V, I_C= 0)	I_{EBO}		1.0	mA
ON CHARACTERISTICS (1)				
DC Current Gain (I_C= 0.5 A, V_{CE}=4.0 V) (I_C= 2.7 A, V_{CE}=4.0 V)	hFE	25 5.0	100	
Collector-Emitter Saturation Voltage (I_C= 2.7 A, I_B=0.9 A)	$V_{CE(sat)}$		6.0	V
Base-Emitter On Voltage (I_C= 2.7 A, V_{CE}=4.0 V)	$V_{BE(on)}$		6.7	V
DYNAMIC CHARACTERISTICS				
Small-Signal Current Gain (I_C= 0.5 A, V_{CE}= 4.0 V, f = 1.0 KHz)	h_{fe}	15		
Small-Signal Current Gain (I_C= 0.5 A, V_{CE}= 4.0 V, f = 0.4 MHz)	$\lvert h_{fe} \rvert$	5.0		

(1) Pulse Test: Pulse width = 300 us , Duty Cycle ≦ 2.0%

ACTIVE REGION SAFE OPERATING AREA (SOA)



There are two limitation on the power handling ability of a transistor: average junction temperature and second breakdown safe operating area curves indicate I_C-V_{CE} limits of the transistor that must be observed for reliable operation i.e., the transistor must not be subjected to greater dissipation than curves indicate.

The data of SOA curve is base on $T_{J(PK)}$=200 °C; T_C is variable depending on conditions. second breakdown pulse limits are valid for duty cycles to 10% provided $T_{J(PK)}$≤200°C, At high case temperatures, thermal limitation will reduce the power that can be handled to values less than the limitations imposed by second breakdown.