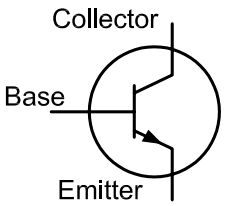
Bipolar Transistor

multicomp PRO

RoHS Compliant

NPN



Description:

High Current TO-3 NPN Silicon Power Transistor. Designed for use in high power amplifier and switching circuit applications.

Features:

- High Current Capability I_C Continuous = 50A
- DC Current Gain h_{fe} 15-60 I_C = 20A
- Low Collector Emitter Saturation Voltage $V_{CE(sat)1V}$ I_C = 25A

Absolute Maximum Ratings:

Characteristic	Symbol	Rating
Collector - Base Voltage	V_{CBO}	80V
Collector - Emitter Voltage	V_{CEO}	80V
Collector - Base Voltage	V_{EBO}	5V
Continuous Collector Current	I_C	50A
Base Current	I_B	15A
Total Device Dissipation (T_C = +25°C) Derate above 25°C	P_D	300W 1.715mW/°C
Operating Junction Temperature Range	T_J	-65°C to +200°C
Storage Temperature Range	T_{STG}	-65°C to +200°C

Electrical Characteristics (T_A = 25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min.	Max.	Unit
OFF Characteristics					
Collector - Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = 2A, I_B = 0	80	-	V
Collector - Cut-off Current	I_{CEX}	V_{CE} = 80V, $V_{EB(off)}$ = 1.5V	-	2	mA
	I_{CBO}	V_{CB} = 80V, I_E = 0	-	2	mA
	I_{CEO}	V_{CB} = 40V, I_E = 0	-	1	mA
Emitter Cut-off Current	I_{EBO}	V_{EB} = 5V, I_C = 0	-	5	mA
ON Characteristics					
DC Current Gain	h_{FE}	V_{CE} = 2V, I_C = 25A	15	60	-
		V_{CE} = 5V, I_C = 50A	5	-	-
Collector - Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 25A, I_B = 2.5A	-	1	V
		I_C = 50A, I_B = 10A	-	5	
Base - Emitter Saturation Voltage	$V_{BE(sat)}$	I_C = 25A, I_B = 2.5A	-	2	V
Base - Emitter on Voltage	$V_{BE(on)}$	I_C = 25A, V_{CE} = 2V	-	2	V

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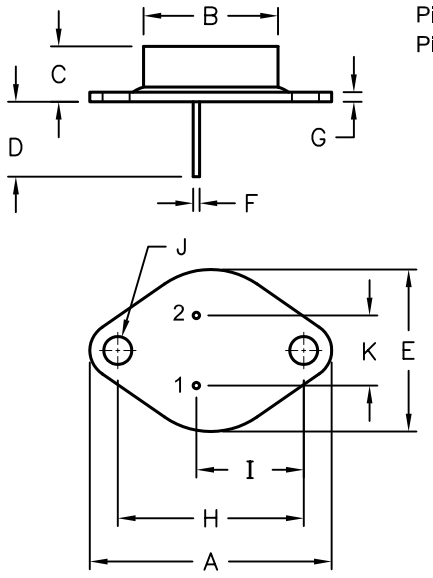
Parameter	Symbol	Test Conditions	Min.	Max.	Unit
Small-Signal Characteristics					
Current Gain-Bandwidth Product (Note 1)	f_T	V_{CB} = 10V, I_C = 1A, f = 1MHz	2	-	MHz
Output Capacitance	C_{OBO}	V_{CB} = 10V, I_E = 0, f = 1MHz	-	1200	pF
Small-Signal Current Gain	h_{fe}	V_{CB} = 5V, I_C = 10A, f = 1kHz	15	-	-

Note 1: Pulse Test : Pulse Width ≦ 300μs, Duty Cycle ≦ 2%
Note 2: f_T is defined as the frequency at which $|h_{fe}|$ extrapolates to unity



Pin 1 = Base
Pin 2 = Emitter
Collector (Case)

Dim.	Min.	Max.
A	38.75	39.96
B	19.28	22.23
C	7.96	9.23
D	11.18	12.19
E	25.2	26.67
F	0.92	1.09
G	1.38	1.62
H	29.9	30.4
I	16.64	17.3
J	3.88	4.36
K	10.67	11.18

Dimensions : Millimetres

Part Number Table

Description	Part Number
High Power Transistor, TO-3, NPN, 50A, 80V	2N5686