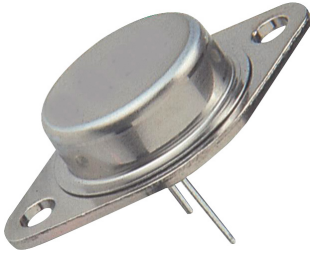


RoHS
Compliant



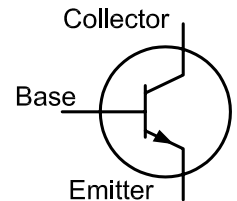
Description:

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 $V_{CE(sat)}$ $I_C = 25A$

NPN



Absolute Maximum Ratings:

Characteristic	Symbol	Rating
Collector - Base Voltage	V_{CB0}	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 ($T_C = +25^\circ C$) Derate above $25^\circ C$	P_D	300W 1.715mW/ $^\circ C$
Operating Junction Temperature Range	T_J	$-65^\circ C$ to $+200^\circ C$
Storage Temperature Range	T_{STG}	$-65^\circ C$ to $+200^\circ C$

Electrical Characteristics ($T_A = 25^\circ C$ 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

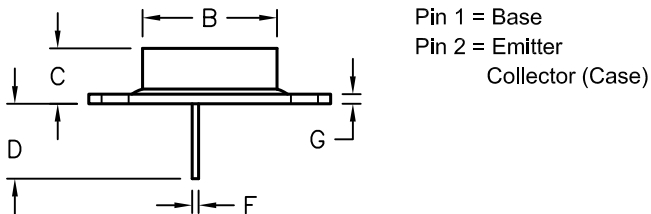
ON Characteristics

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

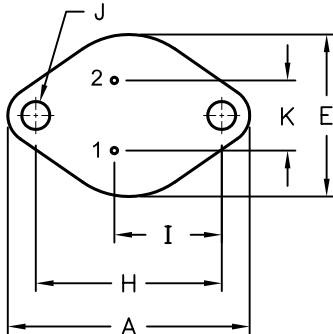
Parameter	Symbol	Test Conditions	Min.	Max.	Unit
Small-Signal Characteristics					
Current Gain-Bandwidth Product (Note 1)	f_T	$V_{CB} = 10V, I_C = 1A, f = 1MHz$	2	-	MHz
Output Capacitance	C_{OBO}	$V_{CB} = 10V, I_E = 0, f = 1MHz$	-	1200	pF
Small-Signal Current Gain	h_{fe}	$V_{CB} = 5V, I_C = 10A, f =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

Note 1: Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$

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

Important Notice : This data sheet and its contents (the "Information") belong to the members of the AVNET group of companies (the "Group") or are licensed to it. No licence is granted for the use of it other than for information purposes in connection with the products to which it relates. No licence of any intellectual property rights is granted. The Information is subject to change without notice and replaces all data sheets previously supplied. The Information supplied is believed to be accurate but the Group assumes no responsibility for its accuracy or completeness, any error in or omission from it or for any use made of it. Users of this data sheet should check for themselves the Information and the suitability of the products for their purpose and not make any assumptions based on information included or omitted. Liability for loss or damage resulting from any reliance on the Information or use of it (including liability resulting from negligence or where the Group was aware of the possibility of such loss or damage arising) is excluded. This will not operate to limit or restrict the Group's liability for death or personal injury resulting from its negligence. Multicomp Pro is the registered trademark of Premier Farnell Limited 2019.