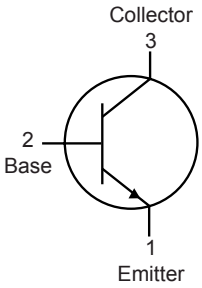
Bipolar Transistor

RoHS Compliant

NPN



Features:

- High Collector Sustaining Voltage :V_{CEO} = 80V @ I_C = 200mA
- Low Collector Emitter saturation Voltage $V_{CE(sat)\ 1V}$ @ I_C = 10A

Description:

High power, NPN, TO-3, Silicon Transistor Designed for use in power amplifier and switching circuits applications

Maximum Ratings:

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V_{CBO}	80	V
Collector-Emitter Voltage	V_{CEO}		
Continuous Collector Current	I_C	20	A
Base Current	I_B	7.5	
Total Device Dissipation (T_C = +25°C) Derate Above 25°C	P_D	200 1.14	W mW/°C
Operating Junction Temperature Range,	T_J	-65 to +200	°C
Storage Temperature Range	T_{stg}		

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 = 200mA, I_B = 0	80	-	V
Collector Cut-Off Current	I_{CEO}	V_{CB} = 80V, I_B = 0	-	5	mA
	I_{CEX}	V_{CE} = 80V, $V_{EB(off)}$ = 1.5V		1	
	I_{CBO}	V_{CB} = 80V, I_E = 0			
Emitter Cut-Off Current	I_{EBO}	V_{EB} = 5V, I_C = 0		5	
ON Characteristics (See Note 1)					
DC Current Gain	h_{FE}	V_{CE} = 2V, I_C = 1A	40	-	-
		V_{CE} = 2V, I_C = 10A	15	60	
		V_{CE} = 4V, I_C = 20A	5	-	
Collector - Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 10A, I_B = 1A	-	1	V
		I_C = 15A, I_B = 1.5A		1.5	
		I_C = 20A, I_B = 4A		2	
Base - Emitter Saturation Voltage	$V_{BE(sat)}$	I_C = 10A, I_B = 1A		1.7	
		I_C = 15A, I_B = 1.5A		2	
		I_C = 20A, I_B = 4A		2.5	
Base - Emitter on Voltage	$V_{BE(on)}$	I_C = 20A, V_{CE} = 4V		2.5	
Small Signal Characteristics					
Current Gain-Bandwidth Product	f_T	V_{CE} = 10V, I_C = 1A, f = 1MHz	2	-	MHz
Small-Signal Current Gain	h_{fe}	V_{CE} = 10V, I_C = 1A, f = 1kHz	-	40	-
Switching Characteristics					
Rise Time	t_r	V_{CC} = 30V, I_C = 10A, I_{B1} = I_{B2} = 1A	-	1	us
Storage Time	t_s	V_{CC} = 30V, I_C = 10mA, I_{B1} = I_{B2} = 1A		2	
Fall Time	t_f			1	

Note 1 : Pulse Test : Pulse Width ≦ 300μs, Duty Cycle ≦ 2%

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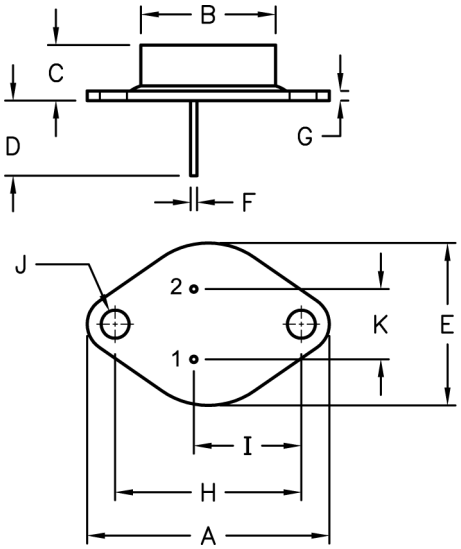

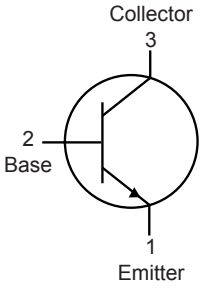

Dimensions	Min.	Max.
A	38.75	39.96
B	19.28	22.23
C	7.96	9.28
D	11.18	12.19
E	25.2	26.67
F	0.92	1.09
G	1.38	1.62
H	29.9	30.4
I	16.64	17.3
J	3.88	4.36
K	10.67	11.18

Dimensions : Millimetres

Part Number Table

Description	Part Number
Transistor, NPN, 20A, 80V, TO-3	2N5303