

Bipolar Transistor



Description:

Plastic NPN TO-220 silicon power transistor is designed for various specific and general purpose applications such as output and driver stages of amplifiers operating at frequencies from DC to greater than 1MHz series shunt and switching regulators low and high frequency inverters/converters and many others.

Features:

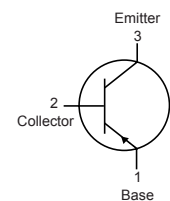
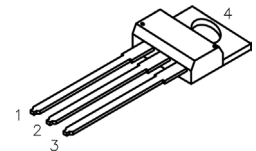
- Very low collector saturation voltage
- Excellent linearity
- Fast switching

Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Collector-Emitter Voltage	V_{CEO}	80	V
Collector-Base Voltage	V_{CES}	80	
Emitter-Base Voltage	V_{EBO}	5	
Continuous Collector Current	I_C	10	A
Base Current	I_B	2	A
Total Device Dissipation at $T_c = 25^\circ\text{C}$ Derate above 25°C	P_D	50 0.4	W W/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_j, T_{stg}	-65 to +150	$^\circ\text{C}$

RoHS
Compliant

NPN



Pin Configuration:

1. Base
2. Collector
3. Emitter
4. Collector

Electrical Characteristics ($T_a = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min.	Max.	Unit
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OFF Characteristics

Collector - Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=30\text{mA}, I_B=0$	80	-	V
Collector Cut-Off Current	I_{CES}	$V_{CE}=80\text{V}, V_{BE}=0$	-	10	μA
Emitter Cut-Off Current	I_{EBO}	$V_{EB}=5\text{V}, I_C=0$	-	100	

ON Characteristics

DC Current Gain	h_{FE}	$V_{CE}=1\text{V}, I_C=2\text{A}$	35	-	-
		$V_{CE}=1\text{V}, I_C=4\text{A}$	20	-	-
Collector - Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=8\text{A}, I_B=800\text{mA}$	-	1	V
Base - Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=8\text{A}, I_B=800\text{mA}$		1.5	

Electrical Characteristics ($T_a = 25^\circ\text{C}$ unless otherwise specified)

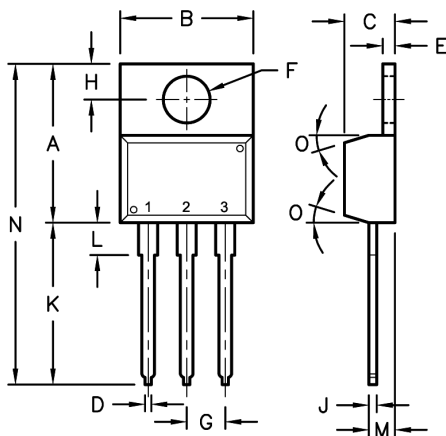
Parameter	Symbol	Test Conditions	Min.	Max.	Unit
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Small-Signal Characteristics

Current Gain-Bandwidth Product	f_T	$V_{CE}=10\text{V}, I_C=500\text{mA}, f=0.5\text{MHz}$	15	-	MHz
Output Capacitance	C_{obo}	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$	220	-	pF

Switching Characteristics

Rise Time	t_r	$I_C=5\text{A}, I_{B1}=I_{B2}=500\text{mA}$	-	0.5	μs
Storage Time	t_s		-	1	
Fall Time	t_f		-	0.4	



Pin Configuration:

1. Base
2. Collector
3. Emitter

Dimensions	A	B	C	D	E	F	G	H	J	K	L	M	N	O
Min.	14.42	9.63	3.65	-	1.15	3.75	2.29	2.54	-	12.7	2.8	2.03	-	7°
Max.	16.51	10.67	4.83	0.9	1.4	3.88	2.79	3.43	0.56	14.73	4.07	2.92	31.24	

Dimensions : Millimetres

Part Number Table

Description	Part Number
Transistor, NPN, 10A, 80V, TO-220	D44H10

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