

SMD Power Transistor (NPN)

Features

- Designed for general purpose amplifier and low speed switching applications
- RoHS compliance



Mechanical Data

Case:	D-PACK(TO-252), Plastic Package
Terminals:	Solderable per MIL-STD-202G, Method 208
Weight:	0.3 grams

D-PACK
(TO-252)



Maximum Ratings ($T_{Ambient}=25^{\circ}C$ unless noted otherwise)

Symbol	Description	MJD31C	Unit
	Marking Code	MJD31C	
V_{CEO}	Collector-Emitter Voltage	100	V
V_{CBO}	Collector-Base Voltage	100	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current Continuous	3	A
I_{CP}	Collector Current Peak	5	A
I_B	Base Current	1	A
P_D	Power Dissipation at T _C =25°C	15	W
	Derate above 25°C	0.12	W/°C
*P_D	Power Dissipation at T _A =25°C	1.56	W
	Derate above 25°C	0.012	W/°C
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-65 to +150	°C

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MJD31C

Thermal Characteristics

Symbol	Description	MJD31C	Unit
RthJC	Thermal Resistance from Junction to Case	8.3	°C/W
*RthJA	Thermal Resistance from Junction to Ambient	80	°C/W
TL	Lead Temperature for Soldering	260	°C

Note: *These ratings are applicable when surface mounted on the minimum pad sizes recommended.

Electrical Characteristics ($T_{Ambient}=25^{\circ}\text{C}$ unless noted otherwise)

Off Characteristics

Symbol	Description	Min.	Max.	Unit	Conditions
V _{CEO}	Collector Emitter Voltage	100	-	V	I _C =1mA, I _B =0
I _{CEO}	Collector Cut-off Current	-	50	μA	V _{CE} =60V, I _B =0
I _{CES}	Collector Cut-off Current	-	20	μA	V _{CE} =Rated V _{CEO} , V _{EB} =0
I _{EBO}	Emitter Cut-off Current	-	1	mA	V _{EB} =5V, I _C =0

On Characteristics (**)

Symbol	Description	Min.	Max.	Unit	Conditions
V _{CE(sat)}	Collector Emitter Saturation Voltage	-	1.2	V	I _C =3A, I _B =0.375A
V _{BE(on)}	Base Emitter on Voltage	-	1.8	V	V _{CE} =4V, I _C =3A
h _{FE}	D.C. Current Gain	25	-		V _{CE} =4V, I _C =1A
		10	50		V _{CE} =4V, I _C =3A

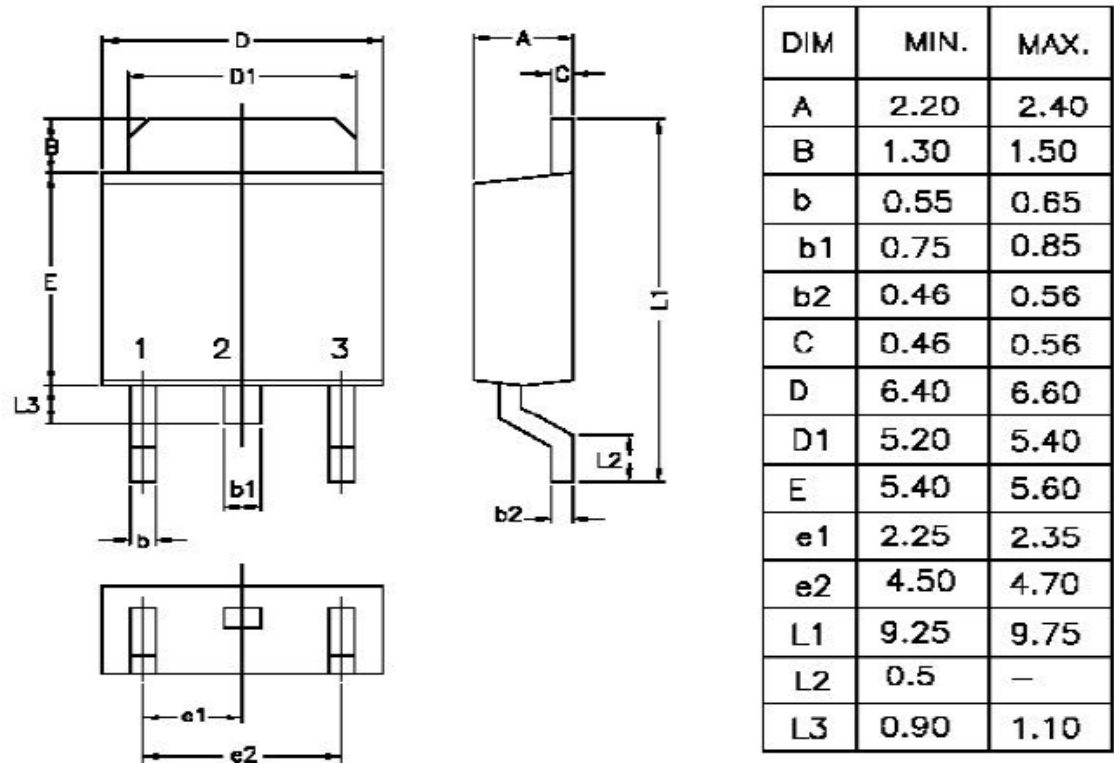
Dynamic Characteristics

Symbol	Description	Min.	Typ.	Unit	Conditions
***f _T	Current Gain Bandwidth Product	3	-	MHz	V _{CE} =10V, I _C =500mA, f=1MHz
h _{fe}	Small Signal Current Gain	20	-		V _{CE} =10V, I _C =500mA, f=1KHz

Note: ** Pulse Test: Pulse Width≤300μs, Duty Cycles≤2%.

*** $f_T = |h_{fe}| \cdot f_{test}$

Dimensions in mm



PIN CONFIGURATION

- 1. BASE
- 2. COLLECTOR
- 3. EMITTER

D-PACK
(TO-252)

How to contact us:

US HEADQUARTERS

28040 WEST HARRISON PARKWAY, VALENCIA, CA 91355-4162

Tel: (800) TAITRON (800) 824-8766 (661) 257-6060

Fax: (800) TAITFAX (800) 824-8329 (661) 257-6415

Email: taitron@taitroncomponents.com

Http://www.taitroncomponents.com

TAITRON COMPONENTS MEXICO, S.A .DE C.V.

BOULEVARD CENTRAL 5000 INTERIOR 5 PARQUE INDUSTRIAL ATITALAQUIA, HIDALGO C.P.
42970 MEXICO

Tel: +52-55-5560-1519

Fax: +52-55-5560-2190

TAITRON COMPONENTS INCORPORATED REPRESENTAÇÕES DO BRASIL LTDA

RUA DOMINGOS DE MORAIS, 2777, 2.ANDAR, SALA 24 SAÚDE - SÃO PAULO-SP 04035-001 BRAZIL

Tel: +55-11-5574-7949

Fax: +55-11-5572-0052

TAITRON COMPONENTS INCORPORATED, SHANGHAI REPRESENTATIVE OFFICE

METROBANK PLAZA, 1160 WEST YAN' AN ROAD, SUITE 1503, SHANGHAI, 200052, CHINA

Tel: +86-21-5424-9942

Fax: +86-21-5424-9931