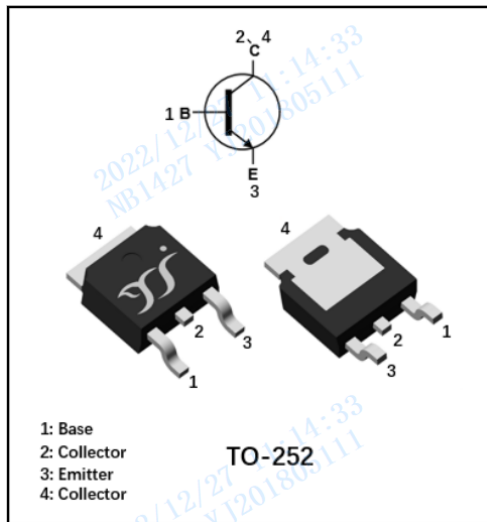


NPN Power Transistor



Features

- Epoxy meets UL-94 V-0 flammability rating and halogen free
- Moisture Sensitivity Level 1

Applications

- Designed for general purpose amplifier and low speed switching applications.

Mechanical Data

- Package: TO-252
- Terminals: Tin plated leads, solderable per J-STD-002 and JESD22-B102

■ Maximum Ratings (Ta=25°C unless otherwise noted)

Item	Symbol	Unit	Value
Device marking code			MJD31C
Collector-Base Voltage	V_{CBO}	V	100
Collector-Emitter Voltage	V_{CEO}	V	100
Emitter-Base Voltage	V_{EBO}	V	5
Collector Current -Continuous	I_C	A	3
Total Device Dissipation (*)	P_D	W	1.25
Thermal Resistance, Junction to Ambient Air (*)	R_{thJA}	°C/W	100
Junction Temperature	T_j	°C	-55 to +150
Storage Temperature	T_{STG}	°C	-55 to +150

(*) Device mounted on FR-4 PCB 15 x 17 x 0.8 mm



MJD31C

■ Electrical Characteristics (Ta=25°C unless otherwise noted)

Item	Symbol	Unit	Conditions	Min	Typ	Max
Collector-base breakdown voltage	V_{CBO}	V	$I_C = 1\text{mA}$, $I_E = 0$	100	-	-
Collector-emitter breakdown voltage	V_{CEO}	V	$I_C = 30\text{mA}$, $I_B = 0$	100	-	-
Emitter-base breakdown voltage	V_{EBO}	V	$I_E = 1\text{mA}$, $I_C = 0$	5	-	-
Collector-base cut-off current	I_{CEO}	μA	$V_{CE} = 60\text{V}$, $I_B = 0$	-	-	50
Collector-base cut-off current	I_{CES}	μA	$V_{CE} = 100\text{V}$, $V_{EB} = 0$	-	-	20
Emitter-base cut-off current	I_{EBO}	mA	$V_{EB} = 5\text{V}$, $I_C = 0$	-	-	1
DC current gain	h_{FE}		$V_{CE} = 4\text{V}$, $I_C = 1\text{A}$	25	-	-
			$V_{CE} = 4\text{V}$, $I_C = 3\text{A}$	10	-	75
Collector-emitter saturation voltage	$V_{CE(sat)}$	V	$I_C = 3\text{A}$, $I_B = 0.375\text{A}$	-	-	1.2
Base-emitter voltage	V_{BE}	V	$I_C = 3\text{A}$, $V_{CE} = 4\text{V}$	-	-	1.8

■ Other Characteristics (Ta=25°C unless otherwise noted)

Item	Symbol	Unit	Conditions	Min	Typ	Max
Transition frequency	f_T	MHz	$V_{CE} = 10\text{V}$, $I_C = 0.5\text{A}$, $f = 1\text{KHz}$	3	-	-



■ Characteristics(Typical)

Fig.1 - Collector Saturation Region

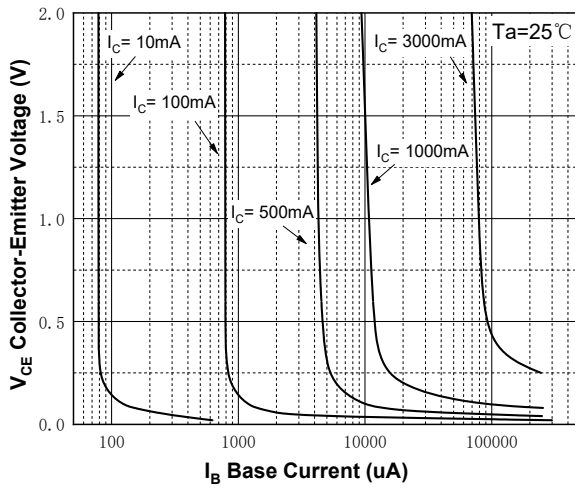


Fig.2 - DC Current Gain

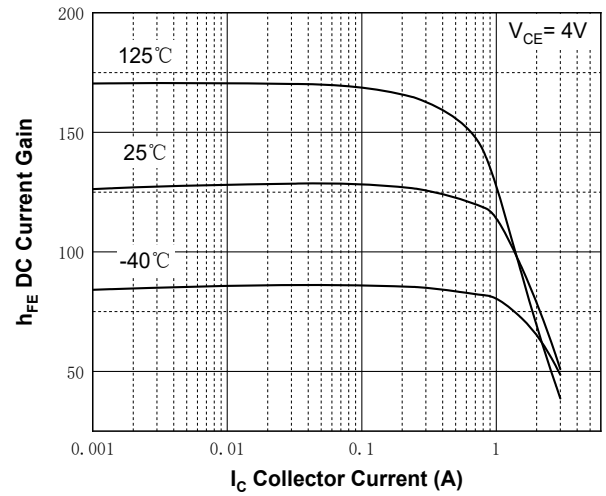


Fig.3 - DC Current Gain

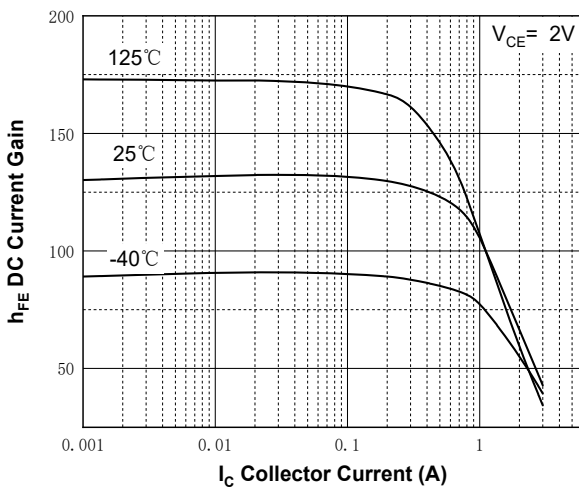


Fig.4 - Collector-Emitter Saturation Voltage vs. Collector Current

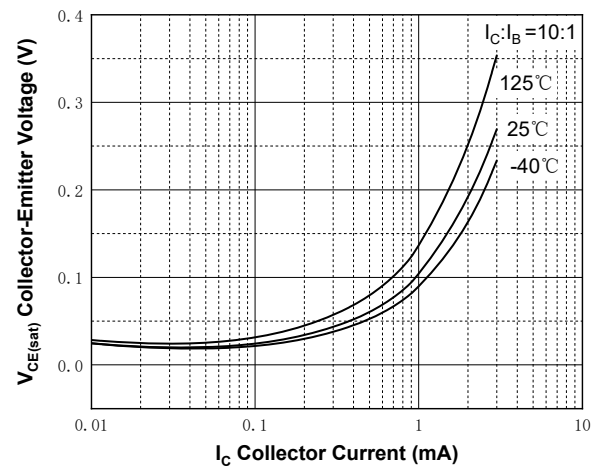


Fig.5 - Base-Emitter Saturation Voltage vs. Collector Current

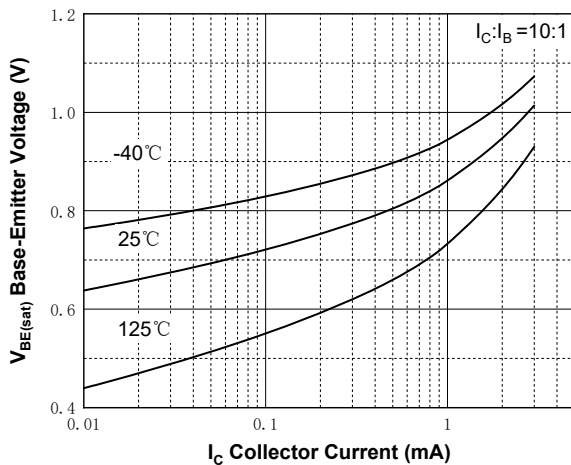
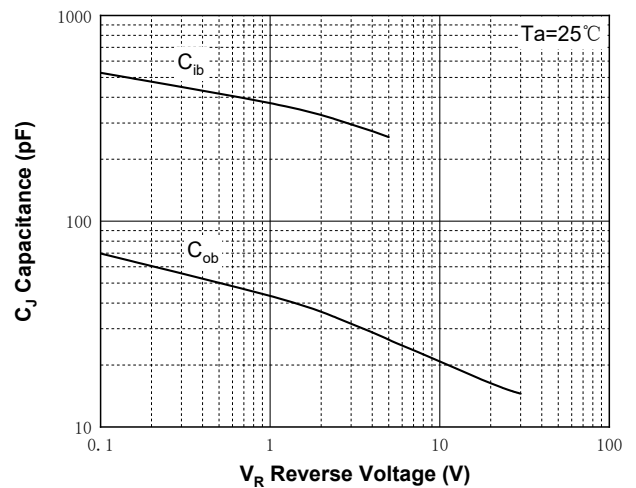


Fig.6 - Capacitance



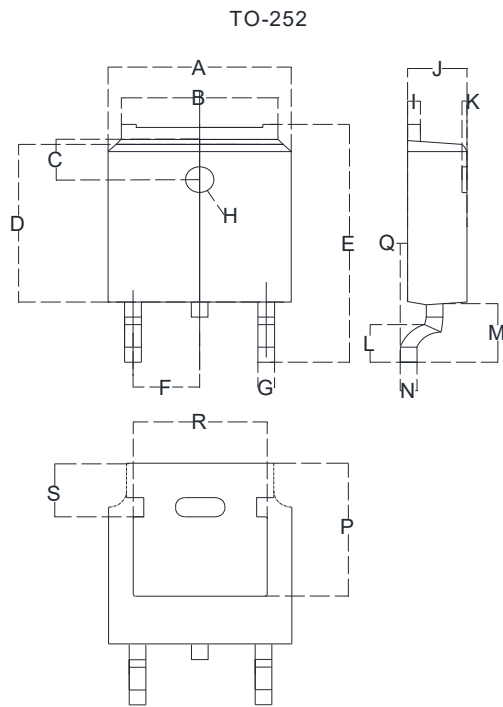


MJD31C

■ Ordering Information (Example)

PREFERED P/N	PACKING CODE	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
MJD31C	F1	2500	2500	25000	13"Reel

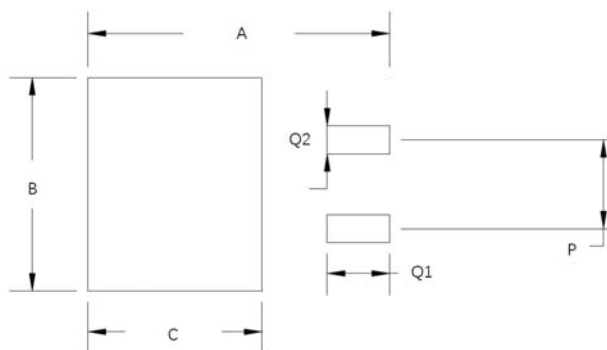
■ TO-252 Package information



Dimensions in millimeters

TO-252		
Dim	Min	Max
A	6.500	6.700
B	5.100	5.460
C	1.400	1.800
D	6.000	6.200
E	10.000	10.400
F	2.166	2.366
G	0.660	0.860
H	Φ 1.050	Φ 1.350
I	0.460	0.580
J	2.200	2.400
K	0	0.300
L	0.890	2.290
M	2.730	3.080
N	0.430	0.580
P	5.15	5.45
Q	0	0.2
R	4.50	5.10
S	1.60	2.40

■ Suggested Pad Layout



Dim	Millimeters
A	11.4
B	6.74
C	6.23
P	4.56
Q1	2.28
Q2	1.52



MJD31C

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