

MJD31C

NPN Silicon Epitaxial Planar Transistor

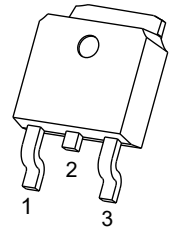
for power switching and amplifier applications

TO-252/DPAK

1.BASE

2.COLLECTOR

3.EMITTER



MAXIMUM RATINGS ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

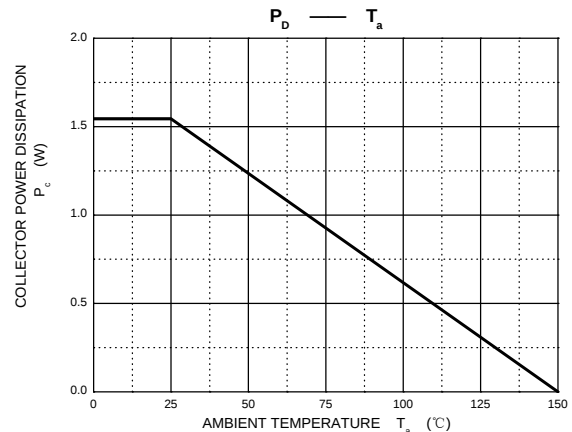
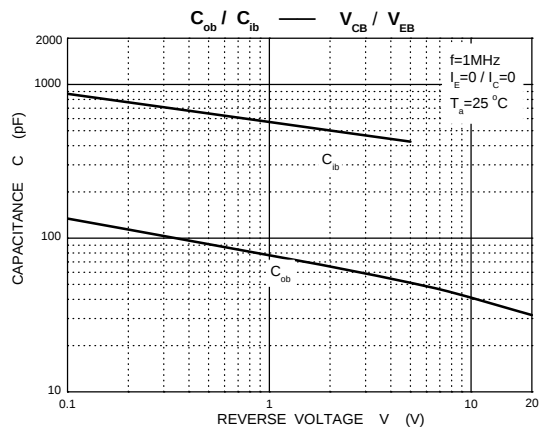
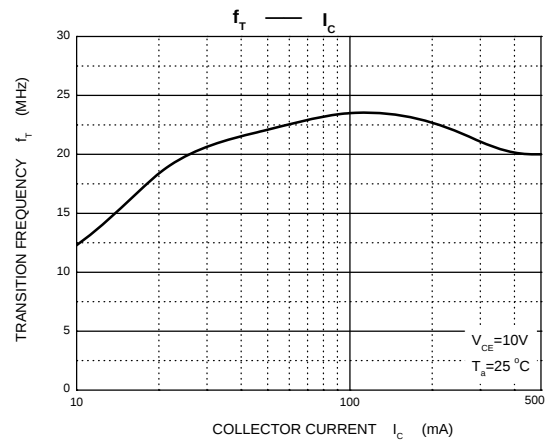
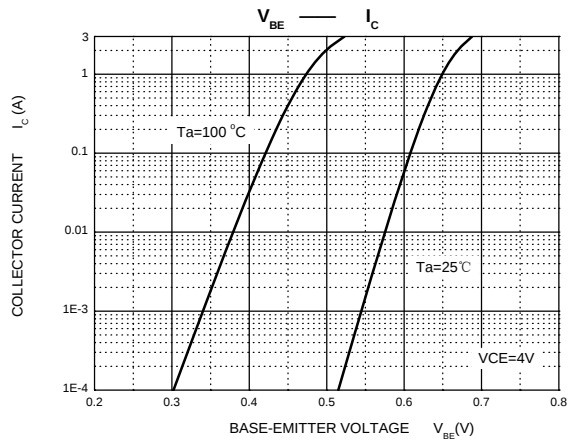
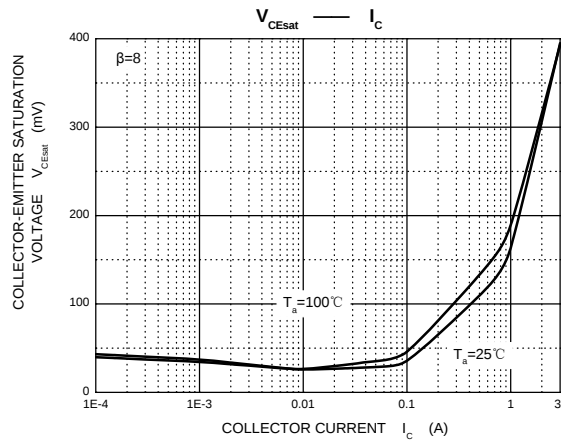
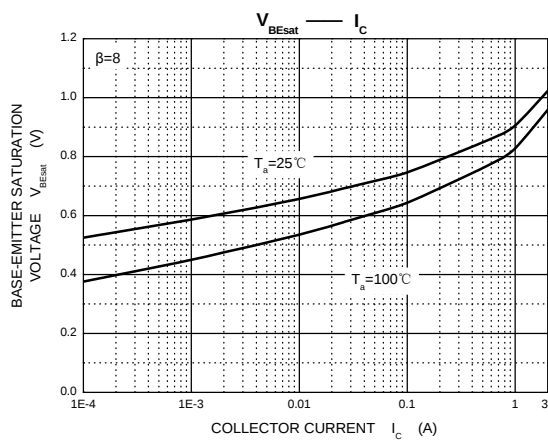
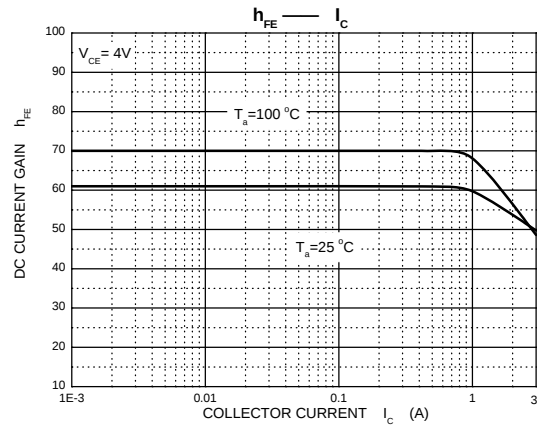
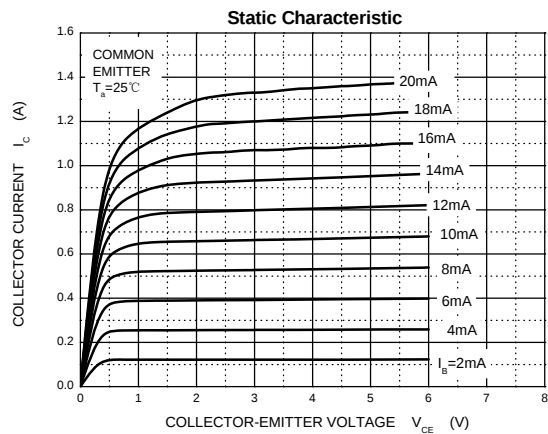
Symbol	Parameter	Max	Unit
V_{CBO}	Collector-Base Voltage	100	V
V_{CEO}	Collector-Emitter Voltage	100	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current -Continuous	3	A
I_{CM}	Collector Current -Pulsed	5	A
P_D	Total Power Dissipation	1.56	W
$R_{\theta JA}$	Thermal Resistance From Junction to Ambient	80	$^{\circ}\text{C/W}$
T_J, T_{stg}	Operation Junction and Storage Temperature Range	-65-150	$^{\circ}\text{C}$

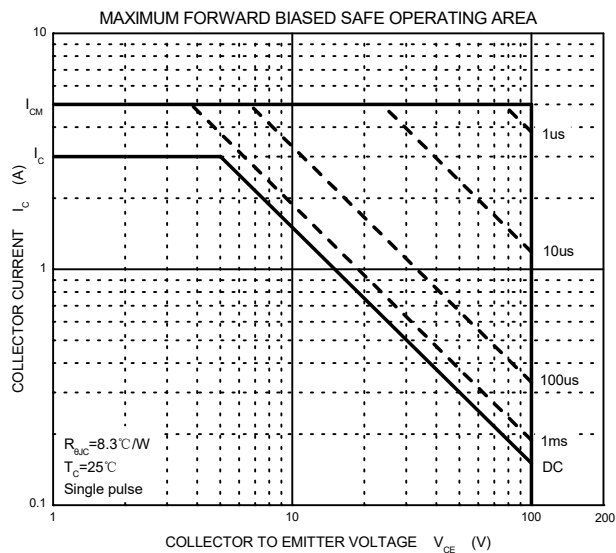
ELECTRICAL CHARACTERISTICS ($T_a=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = 1\text{mA}, I_E = 0$	100		V
Collector-emitter breakdown voltage *	$V_{CEO(sus)}$	$I_C = 30\text{mA}, I_B = 0$	100		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = 1\text{mA}, I_C = 0$	5		V
Collector cut-off current	I_{CES}	$V_{CE} = 100\text{V}, V_{EB} = 0$		20	μA
Collector cut-off current	I_{CEO}	$V_{CE} = 60\text{V}, I_B = 0$		50	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 5\text{V}, I_C = 0$		1	mA
DC current gain	$h_{FE(1)}$	$V_{CE} = 4\text{V}, I_C = 1\text{A}$	25		
	$h_{FE(2)}$	$V_{CE} = 4\text{V}, I_C = 3\text{A}$	15	80	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 3\text{A}, I_B = 0.375\text{A}$		1.2	V
Base-emitter voltage	$V_{BE(on)}$	$V_{CE} = 4\text{V}, I_C = 3\text{A}$		1.8	V
Transition frequency	f_T	$V_{CE} = 10\text{V}, I_C = 0.5\text{A}, f_T = 1\text{KHz}$	3		MHz

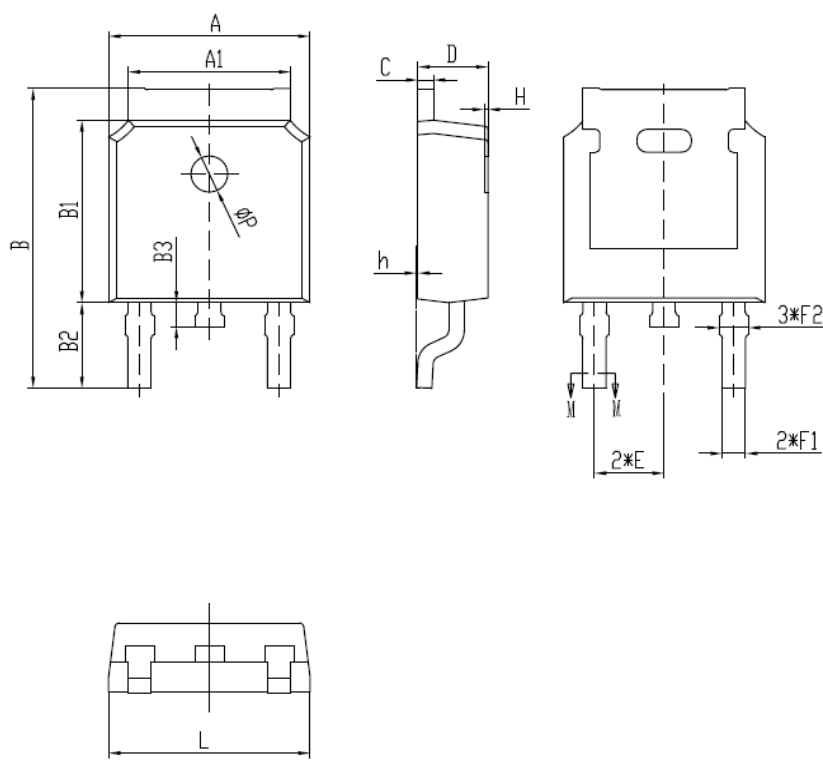
* Pulse Test: $PW \leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$.

Typical Characteristics





TO-252 Package Outline Dimensions



Symbol	Dimensions in Millimeters	
	MIN	MAX
A	6.50	6.70
A1	5.16	5.46
B	9.77	10.17
B1	6.00	6.20
B2	2.60	3.00
B3	0.70	0.90
C	0.45	0.61
D	2.20	2.40
E	2.186	2.386
F1	0.67	0.87
F2	0.76	0.96
H	0.00	0.30
h	0.00	0.127
L	6.50	6.70
Φ P	1.10	1.30