



MJD31B/31C MJD32B/32C

COMPLEMENTARY SILICON POWER TRANSISTORS

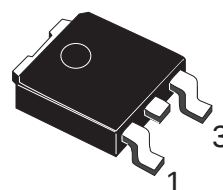
- STMicroelectronics PREFERRED SALESTYPES
- SURFACE-MOUNTING TO-252 (DPAK) POWER PACKAGE IN TAPE & REEL (SUFFIX "T4")
- ELECTRICALLY SIMILAR TO TIP31B/C AND TIP32B/C

APPLICATIONS

- GENERAL PURPOSE SWITCHING AND AMPLIFIER TRANSISTORS

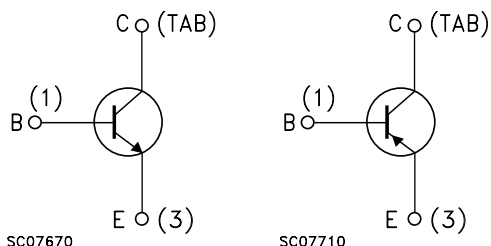
DESCRIPTION

The MJD31B and MJD31C and the MJD32B and MJD32C form complementary NPN-PNP pairs. They are manufactured using Epitaxial Base technology for cost-effective performance.



**DPAK
TO-252**
(Suffix "T4")

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value		Unit
		NPN	MJD31B MJD31C	
V_{CBO}	Collector-Base Voltage ($I_E = 0$)		80	V
V_{CEO}	Collector-Emitter Voltage ($I_B = 0$)		80	V
V_{EBO}	Emitter-Base Voltage ($I_C = 0$)		5	V
I_C	Collector Current		3	A
I_{CM}	Collector Peak Current		5	A
I_B	Base Current		1	A
P_{tot}	Total Dissipation at $T_c = 25^\circ\text{C}$		15	W
T_{stg}	Storage Temperature		-65 to 150	$^\circ\text{C}$
T_j	Max. Operating Junction Temperature		150	$^\circ\text{C}$

For PNP types the values are intended negative.

MJD31B/31C - MJD32B/32C

THERMAL DATA

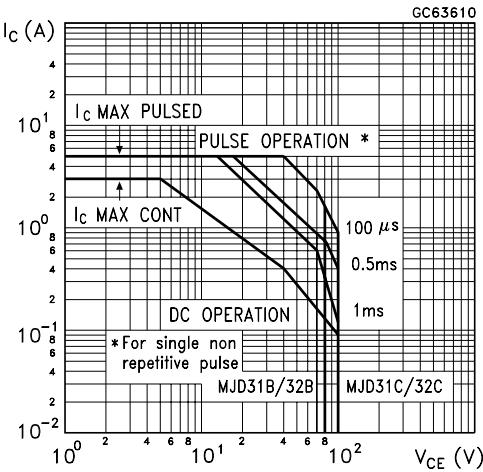
R _{thj-case}	Thermal Resistance Junction-case	Max	8.33	°C/W
R _{thj-amb}	Thermal Resistance Junction-ambient	Max	100	°C/W

ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

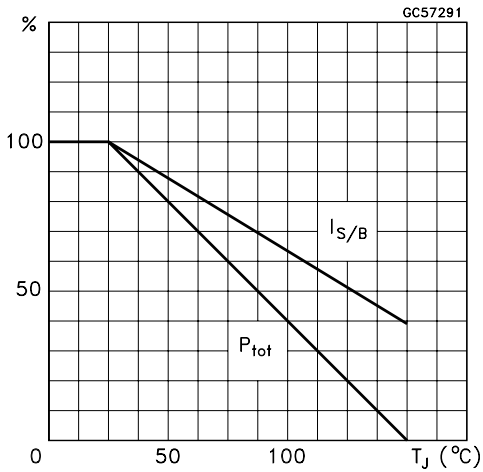
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I _{CES}	Collector Cut-off Current (V _{BE} = 0)	V _{CE} = Max Rating			20	μA
I _{CEO}	Collector Cut-off Current (I _B = 0)	V _{CE} = 60 V			50	μA
I _{EBO}	Emitter Cut-off Current (I _C = 0)	V _{EB} = 5 V			0.1	mA
V _{CEO(sus)}	Collector-Emitter Sustaining Voltage	I _C = 30 mA for MJD31B/32B for MJD31C/32C	80 100			V V
V _{CE(sat)*}	Collector-Emitter Saturation Voltage	I _C = 3 A I _B = 375 mA			1.2	V
V _{BE(on)*}	Base-Emitter Voltage	I _C = 3 A V _{CE} = 4 V			1.8	V
h _{FE*}	DC Current Gain	I _C = 1 A V _{CE} = 4 V I _C = 3 A V _{CE} = 4 V	25 10		50	
h _{fe}	Dynamic Current Gain	I _C = 0.5 A V _{CE} = 10 V f = 1 KHz I _C = 0.5 A V _{CE} = 10 V f = 1 MHz	20 3			

* Pulsed: Pulse duration = 300 μs, duty cycle ≤ 2 %
For PNP type voltage and current values are negative.

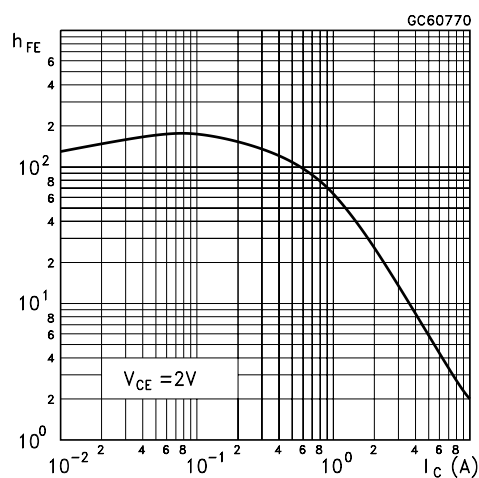
Safe Operating Area



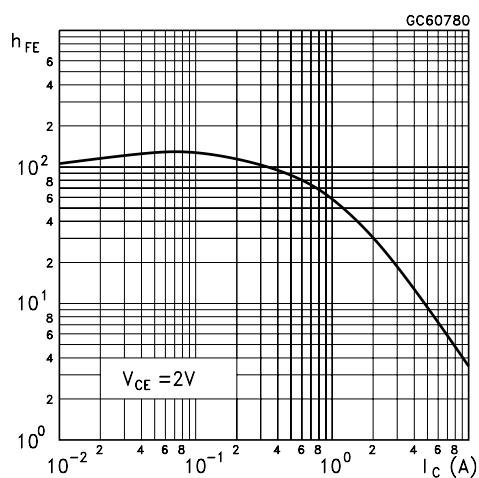
Derating Curves



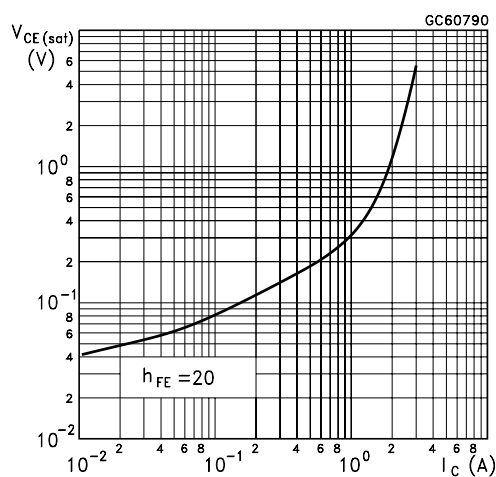
DC Current Gain (NPN type)



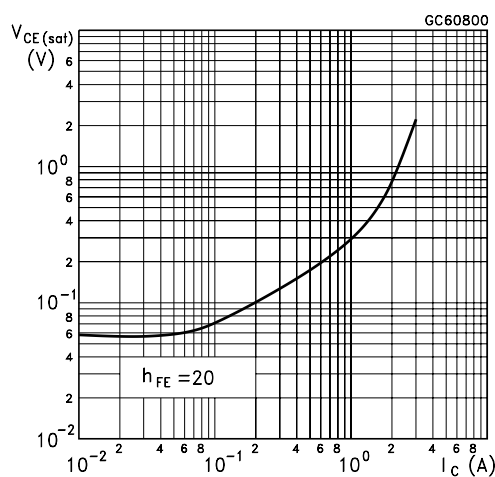
DC Current Gain (PNP type)



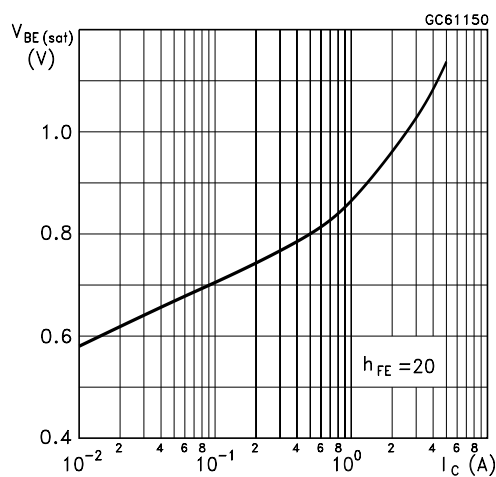
Collector-Emitter Saturation Voltage (NPN type)



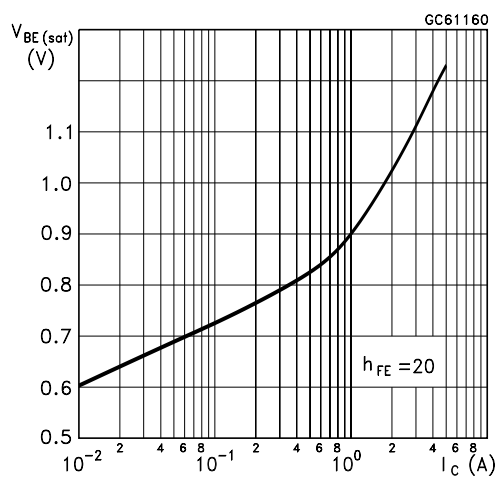
Collector-Emitter Saturation Voltage (PNP type)



Base-Emitter Saturation Voltage (NPN type)

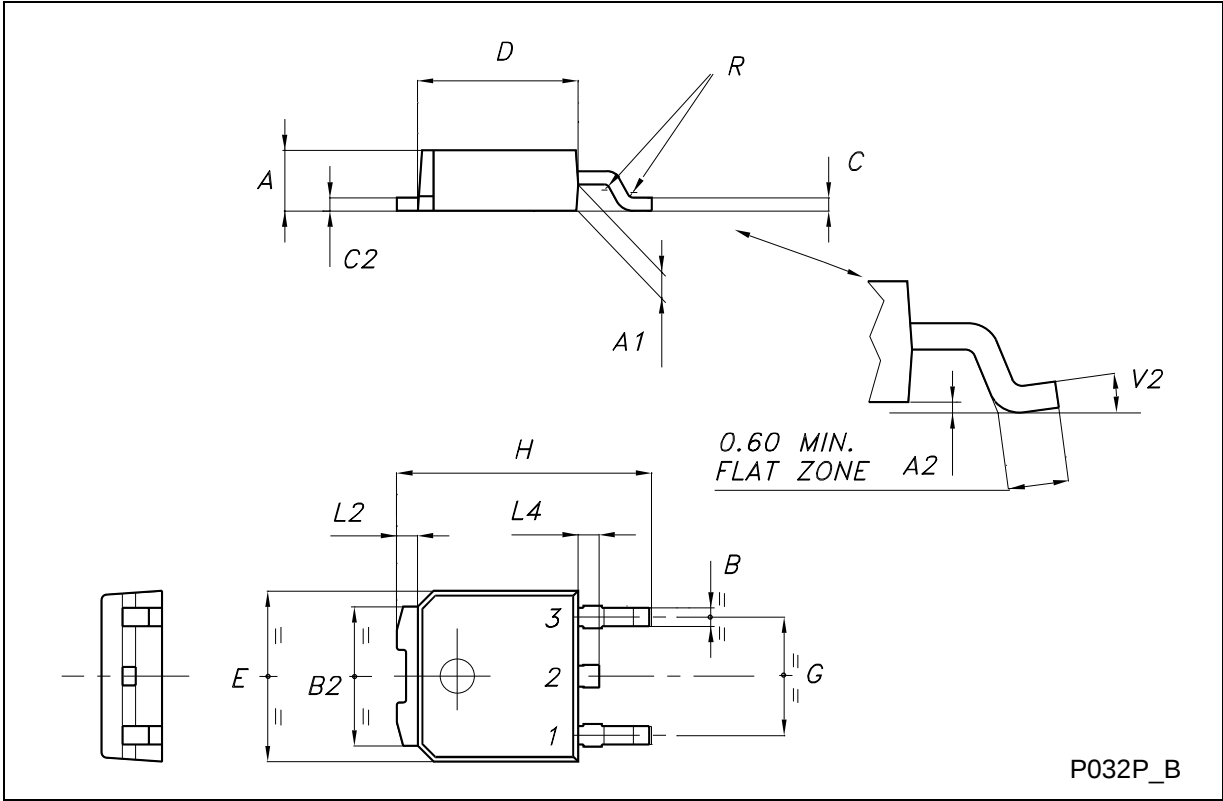


Collector-Base Capacitance (PNP type)



TO-252 (DPAK) MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	2.20		2.40	0.087		0.094
A1	0.90		1.10	0.035		0.043
A2	0.03		0.23	0.001		0.009
B	0.64		0.90	0.025		0.035
B2	5.20		5.40	0.204		0.213
C	0.45		0.60	0.018		0.024
C2	0.48		0.60	0.019		0.024
D	6.00		6.20	0.236		0.244
E	6.40		6.60	0.252		0.260
G	4.40		4.60	0.173		0.181
H	9.35		10.10	0.368		0.398
L2		0.8			0.031	
L4	0.60		1.00	0.024		0.039
V2	0°		8°	0°		0°



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