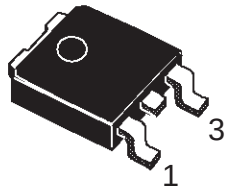
MJD31B/31C
MJD32B/32C

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



DPAK
TO-252
(Suffix "T4")

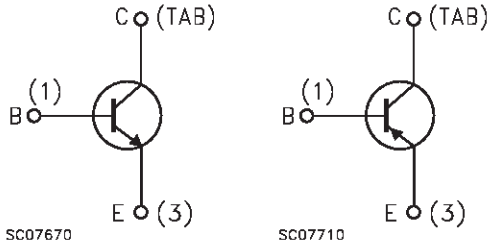
APPLICATIONS

- 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.

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter		Value		Unit
		NPN	MJD31B	MJD31C	
		PNP	MJD32B	MJD32C	
V_{CBO}	Collector-Base Voltage (I_E = 0)		80	100	V
V_{CEO}	Collector-Emitter Voltage (I_B = 0)		80	100	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 ^oC		15		W
T_{stg}	Storage Temperature		-65 to 150		^oC
T_j	Max. Operating Junction Temperature		150		^oC

For PNP types the values are intented negative.

THERMAL DATA

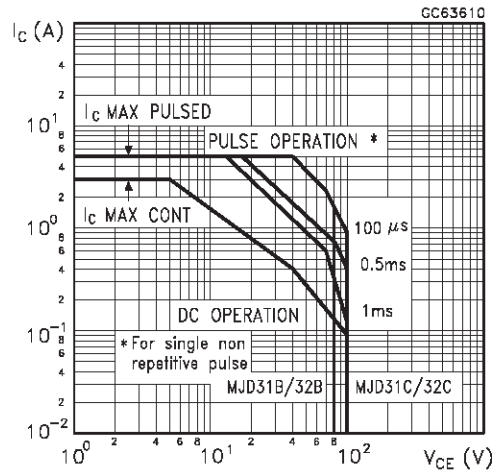
$R_{thj\text{-}case}$	Thermal Resistance Junction-case	Max	8.33	^{o}C/W
$R_{thj\text{-}amb}$	Thermal Resistance Junction-ambient	Max	100	^{o}C/W

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

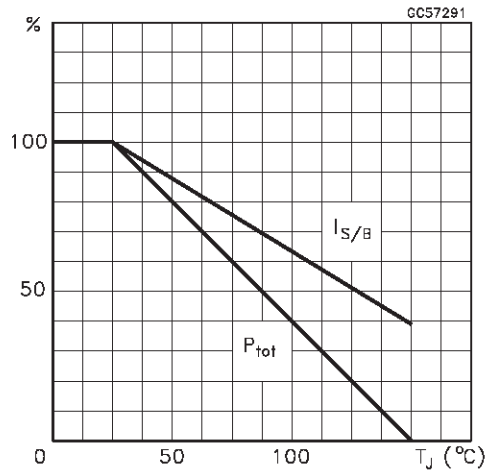
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CES}	Collector Cut-off Current (V_{BE} = 0)	V_{CE} = Max Rating			20	µA
I_{CEO}	Collector Cut-off Current (I_B = 0)	V_{CE} = 60 V			50	µA
I_{EBO}	Emitter Cut-off Current (I_C = 0)	V_{EB} = 5 V			0.1	mA
$V_{CEO(sus)}$	Collector-Emitter Sustaining 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.

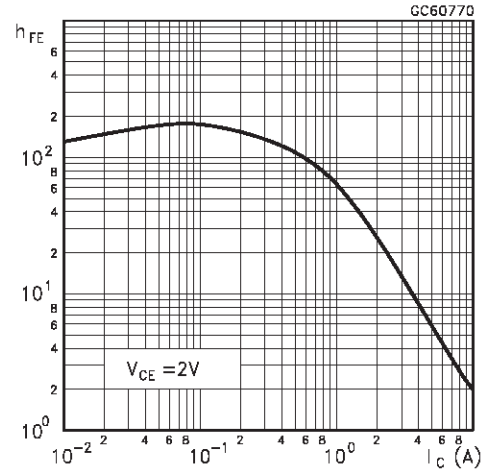
Safe Operating Area



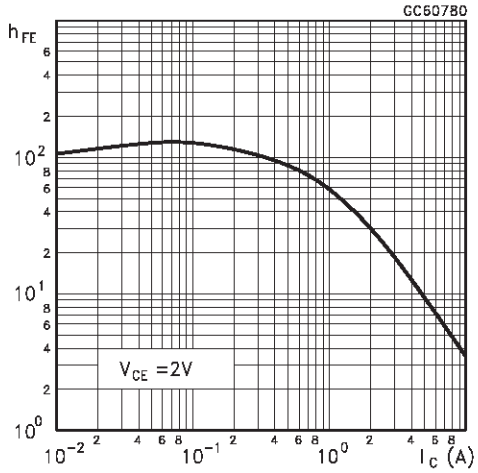
Derating Curves



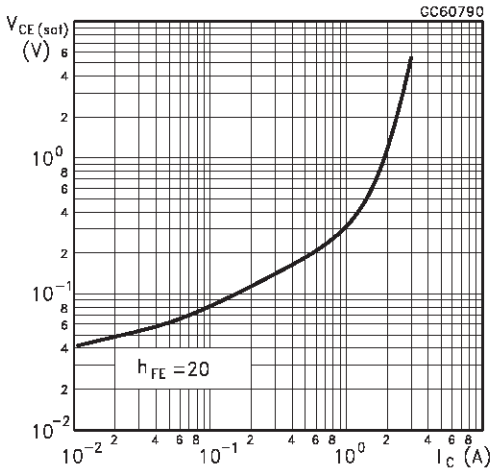
DC Current Gain (NPN type)



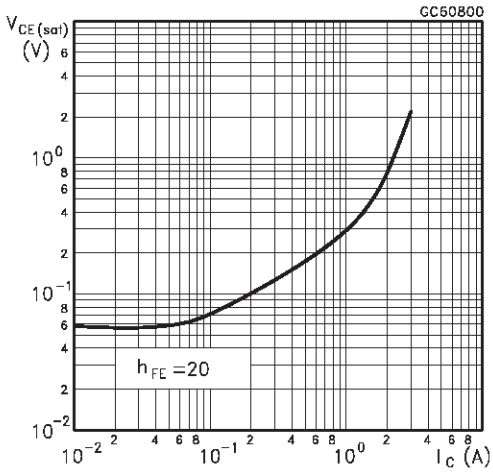
DC Current Gain (PNP type)



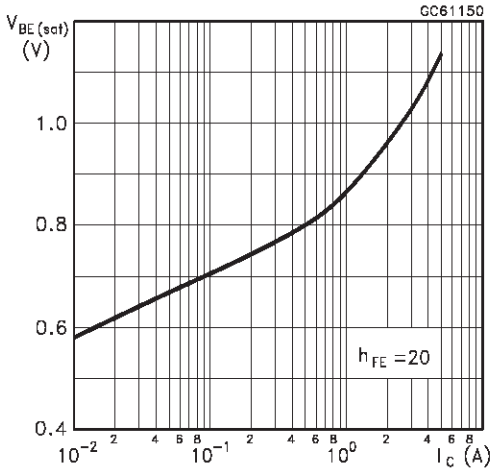
Collector-Emitter Saturation Voltage (NPN type)



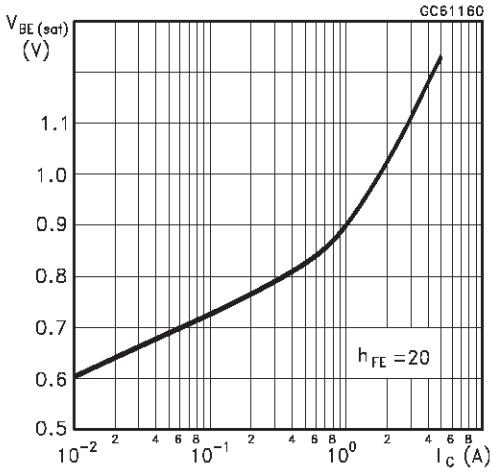
Collector-Emitter Saturation Voltage (PNP type)



Base-Emitter Saturation Voltage (NPN type)

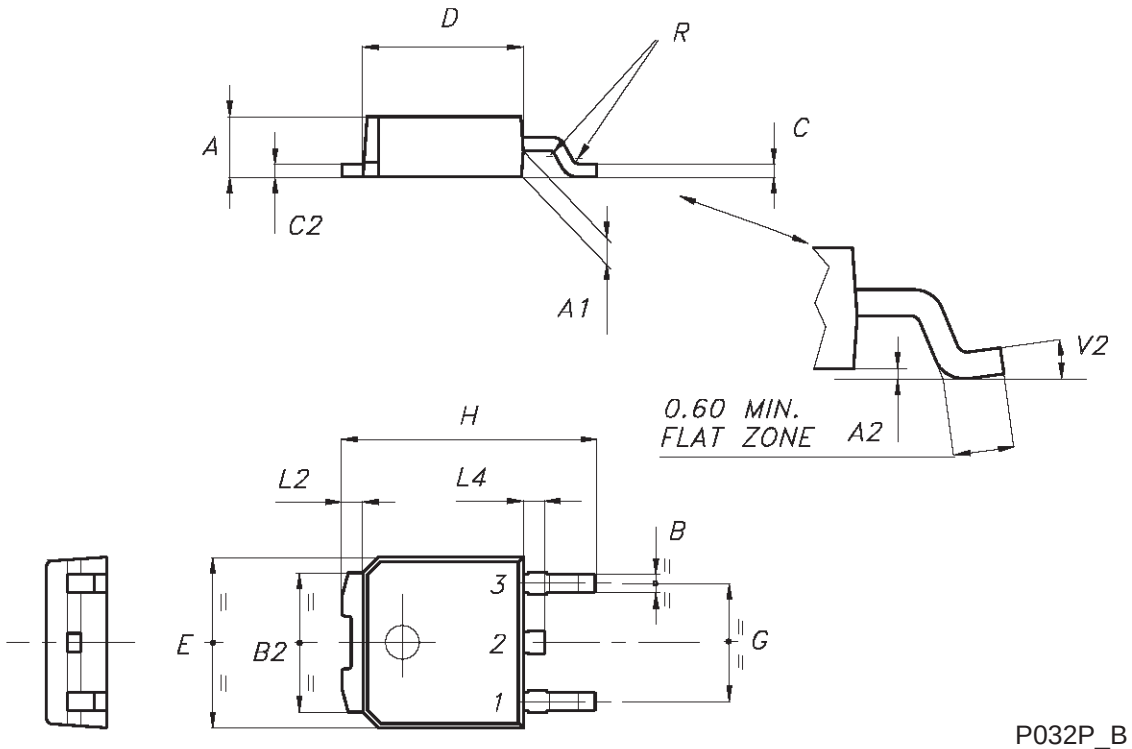


Collector-Base Capacitance (PNP type)



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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