

## COMPLEMENTARY SILICON POWER TRANSISTORS

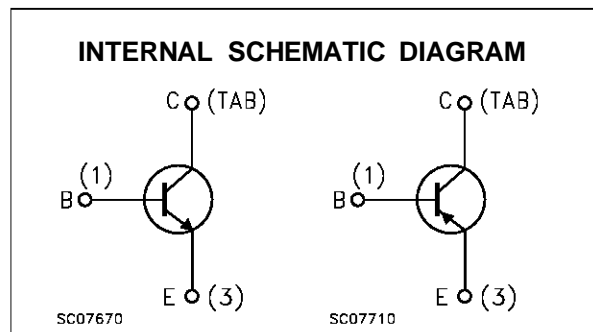
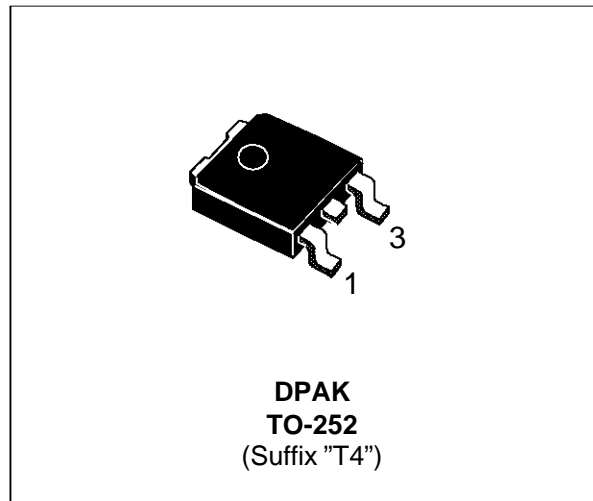
- SGS-THOMSON PREFERRED SALESTYPES
- SURFACE-MOUNTING TO-252 (DPAK) POWER PACKAGE IN TAPE & REEL (SUFFIX "T4")
- ELECTRICAL SIMILAR TO TIP31B/C AND TIP32B/C

### 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.



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value		Unit
		MJD31B/32B	MJD31C/32C	
$V_{CBO}$	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 $T_c = 25^\circ\text{C}$	15		W
$T_{stg}$	Storage Temperature	-65 to 150		$^\circ\text{C}$
$T_j$	Max. Operating Junction Temperature	150		$^\circ\text{C}$

# MJD31B/31C - MJD32B/32C

## THERMAL DATA

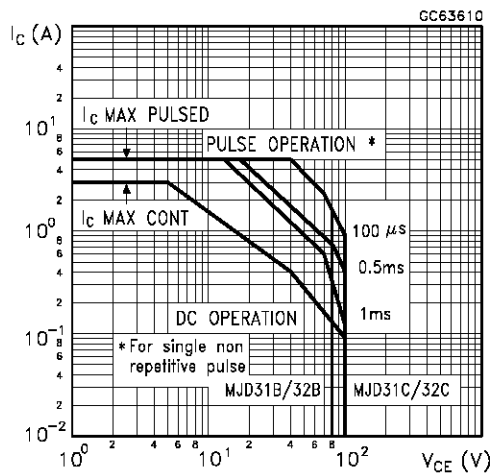
R <sub>thj-case</sub>	Thermal Resistance Junction-case	Max	8.33	°C/W
R <sub>thj-amb</sub>	Thermal Resistance Junction-ambient	Max	100	°C/W

## ELECTRICAL CHARACTERISTICS (T<sub>case</sub> = 25 °C unless otherwise specified)

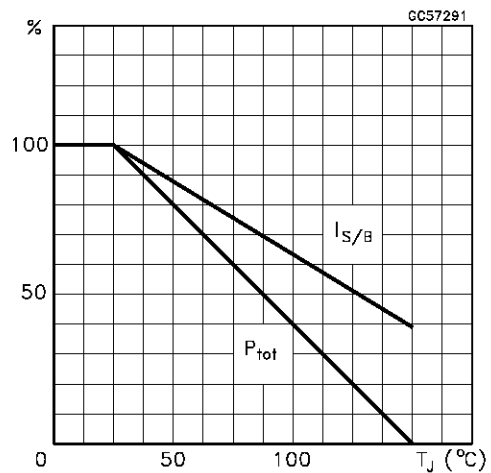
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I <sub>Ces</sub>	Collector Cut-off Current (V <sub>bE</sub> = 0)	V <sub>CB</sub> = Max Rating			20	μA
I <sub>CEO</sub>	Collector Cut-off Current (I <sub>B</sub> = 0)	V <sub>CB</sub> = 60 V			50	μA
I <sub>EBO</sub>	Emitter Cut-off Current (I <sub>C</sub> = 0)	V <sub>EB</sub> = 5 V			0.1	mA
V <sub>CEO(sus)</sub>	Collector-Emitter Sustaining Voltage	I <sub>C</sub> = 30 mA for <b>MJD31B/32B</b> for <b>MJD31C/32C</b>	80 100			v V
V <sub>CE(sat)*</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 3 A    I <sub>B</sub> = 375 mA			1.2	V
V <sub>BE(on)*</sub>	Base-Emitter Voltage	I <sub>C</sub> = 3 A    V <sub>CE</sub> = 4 V			1.8	V
h <sub>FE*</sub>	DC Current Gain	I <sub>C</sub> = 1 A    V <sub>CE</sub> = 4 V I <sub>C</sub> = 3 A    V <sub>CE</sub> = 4 V	25 10		50	
h <sub>fe</sub>	Dynamic Current Gain	I <sub>C</sub> = 0.5 A    V <sub>CE</sub> = 10 V    f = 1 KHZ I <sub>C</sub> = 0.5 A    V <sub>CE</sub> = 10 V    f = 1 MHZ	20 3			

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

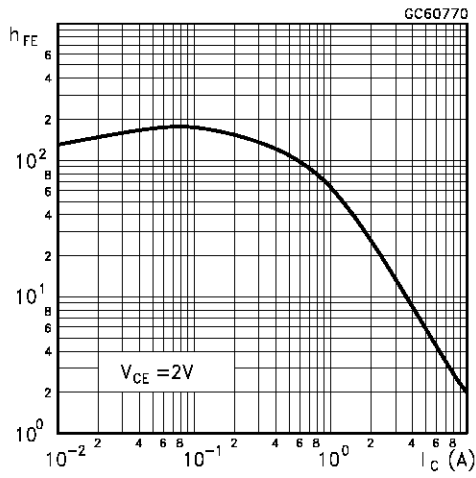
## Safe Operating Area



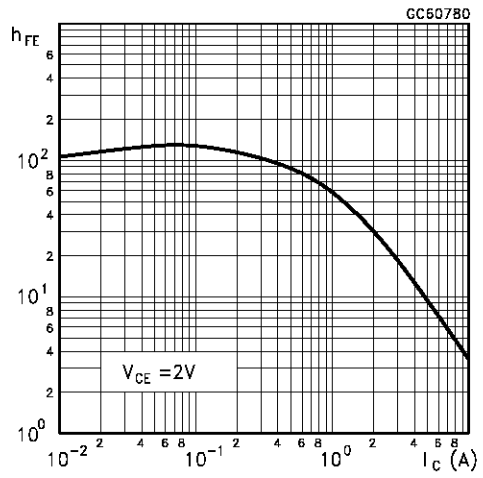
## Derating Curves



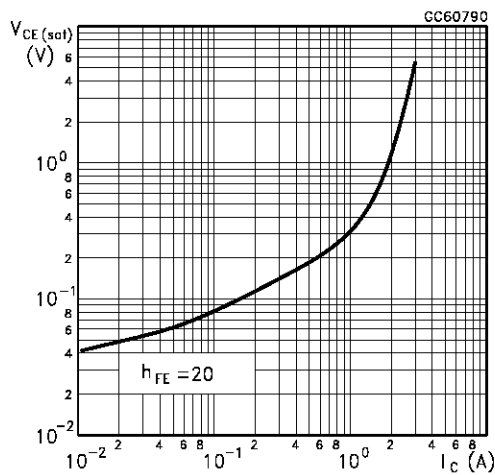
DC Current Gain (NPN type)



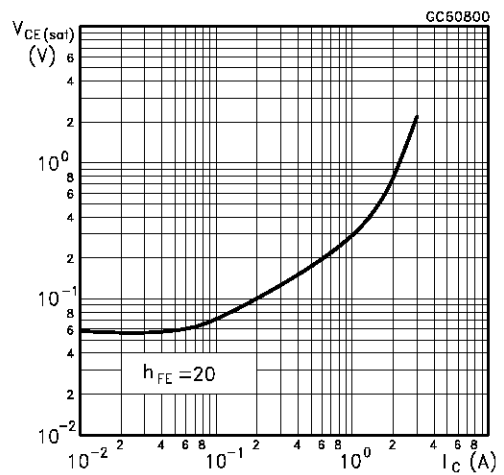
DC Current Gain (PNP type)



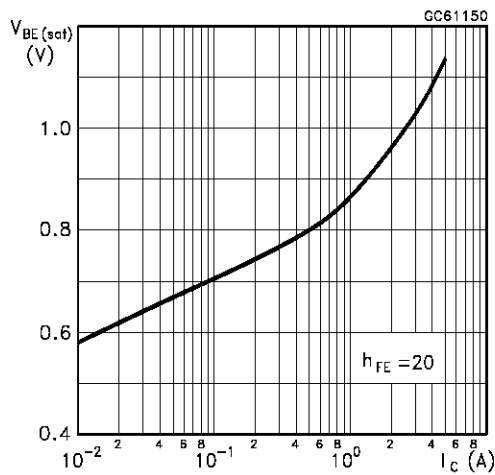
Collector-Emitter Saturation Voltage (NPN type)



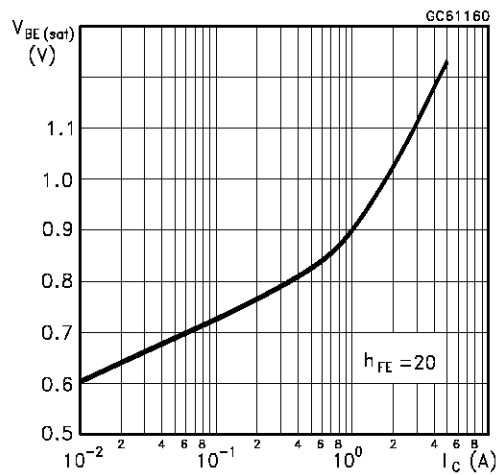
Collector-Emitter Saturation Voltage (PNP type)



Base-Emitter Saturation Voltage (NPN type)

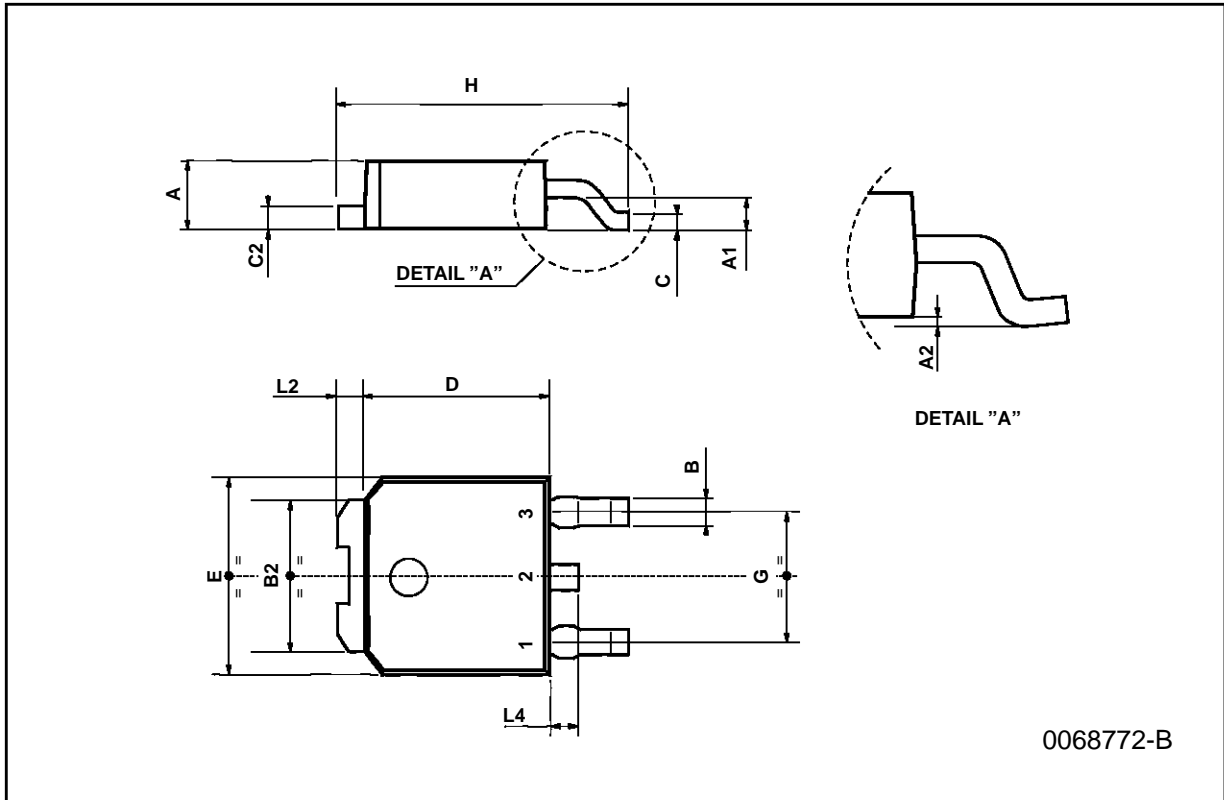


Collector-Base Capacitance (PNP type)



**TO-252 (DPAK) MECHANICAL DATA**

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	2.2		2.4	0.086		0.094
A1	0.9		1.1	0.035		0.043
A2	0.03		0.23	0.001		0.009
B	0.64		0.9	0.025		0.035
B2	5.2		5.4	0.204		0.212
C	0.45		0.6	0.017		0.023
C2	0.48		0.6	0.019		0.023
D	6		6.2	0.236		0.244
E	6.4		6.6	0.252		0.260
G	4.4		4.6	0.173		0.181
H	9.35		10.1	0.368		0.397
L2		0.8			0.031	
L4	0.6		1	0.023		0.039



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