

## COMPLEMENTARY SILICON POWER TRANSISTORS

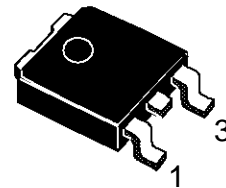
- SGS-THOMSON PREFERRED SALESTYPES
- SURFACE-MOUNTING TO-252 (DPAK)  
POWER PACKAGE IN TAPE & REEL  
(SUFFIX "T4")
- ELECTRICAL SIMILAR TO TIP31B/C AND  
TIP32B/C

### APPLICATIONS

- GENERAL PURPOSE SWITCHING AND  
AMPLIFIER TRANSISTORS

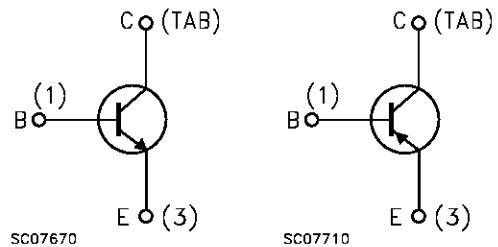
### DESCRIPTION

- 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.



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

### INTERNAL SCHEMATIC DIAGRAM



### 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

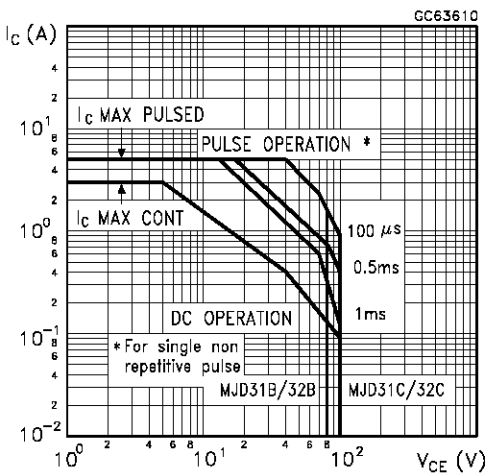
$R_{thj-case}$	Thermal Resistance Junction-case	Max	8.33	$^{\circ}C/W$
$R_{thj-amb}$	Thermal Resistance Junction-ambient	Max	100	$^{\circ}C/W$

## ELECTRICAL CHARACTERISTICS ( $T_{case} = 25^{\circ}C$ unless otherwise specified)

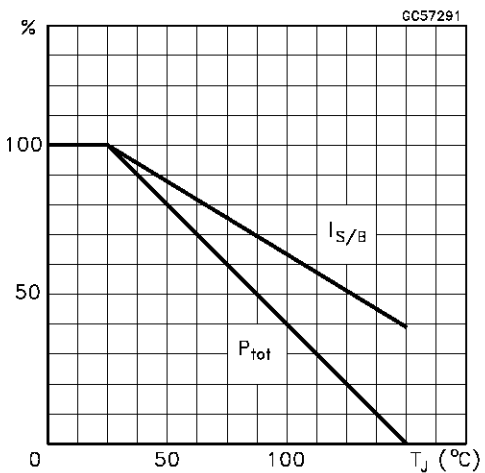
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$I_{Ces}$	Collector Cut-off Current ( $v_{bE} = 0$ )	$V_{CB} = \text{Max Rating}$			20	$\mu A$
$I_{CEO}$	Collector Cut-off Current ( $i_B = 0$ )	$V_{CB} = 60 V$			50	$\mu A$
$I_{EBO}$	Emitter Cut-off Current ( $I_C = 0$ )	$V_{EB} = 5 V$			0.1	mA
$V_{CEO(sus)}$	Collector-Emitter Sustaining Voltage	$I_C = 30 \text{ mA}$ for <b>MJD31B/32B</b> for <b>MJD31C/32C</b>	80 100			V V
$V_{CE(sat)*}$	Collector-Emitter Saturation Voltage	$I_C = 3 A$ $I_B = 375 \text{ mA}$			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	$I_C = 0.5 A$ $V_{CE} = 10 V$ $f = 1 \text{ KHz}$ $I_C = 0.5 A$ $V_{CE} = 10 V$ $f = 1 \text{ MHz}$	20 3			

\* Pulsed: Pulse duration = 300  $\mu s$ , duty cycle  $\leq 2\%$   
For PNP type voltage and current values are negative.

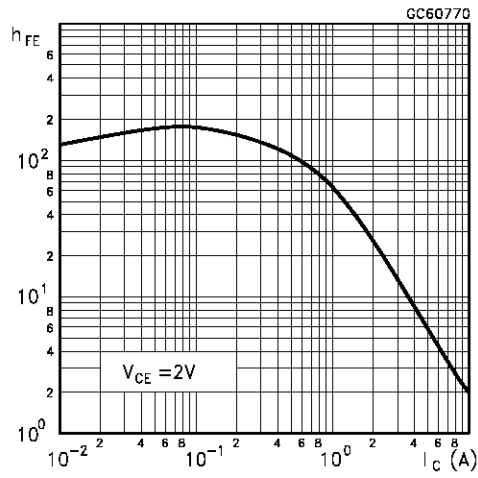
## Safe Operating Area



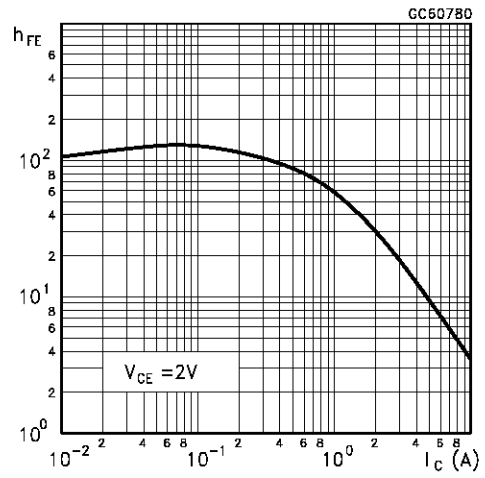
## Derating Curves



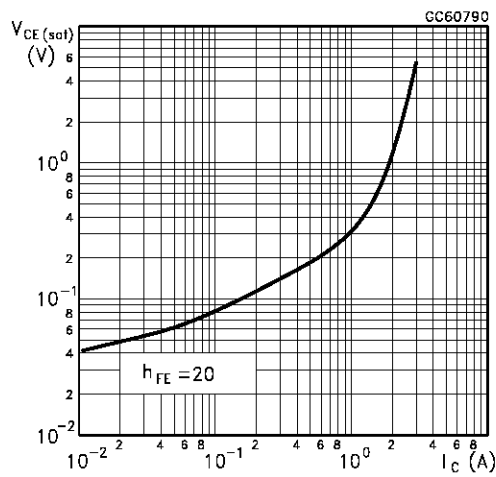
DC Current Gain (NPN type)



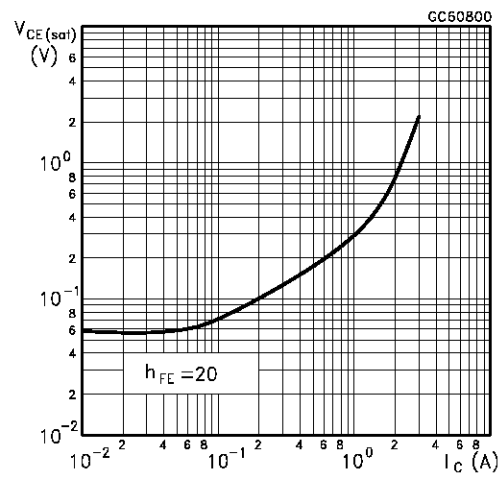
DC Current Gain (PNP type)



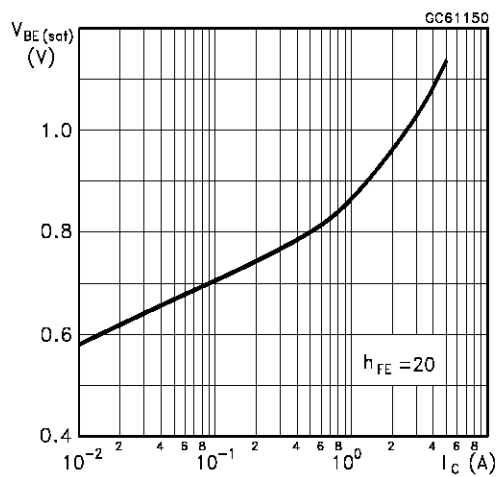
Collector-Emitter Saturation Voltage (NPN type)



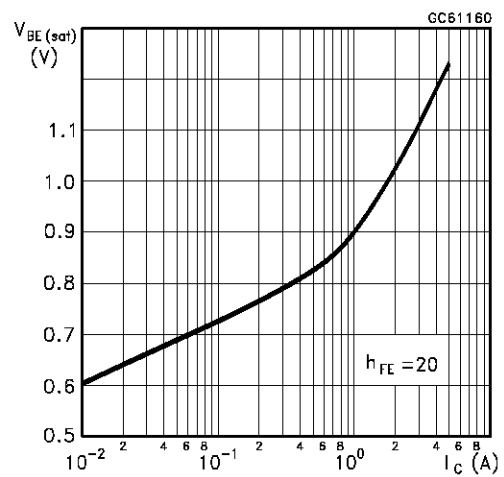
Collector-Emitter Saturation Voltage (PNP type)



Base-Emitter Saturation Voltage (NPN type)

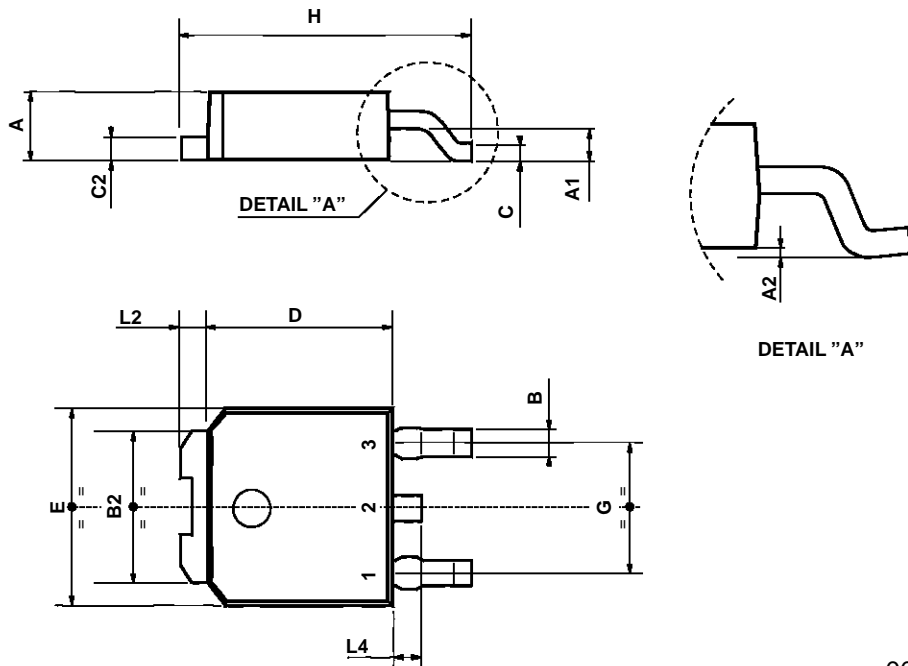


Collector-Base Capacitance (PNP type)



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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