

COMPLEMENTARY SILICON POWER TRANSISTORS

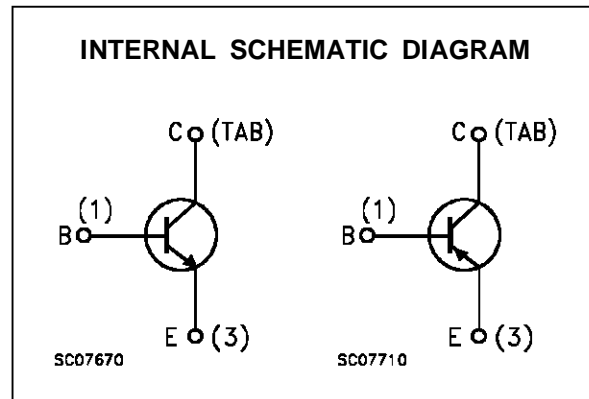
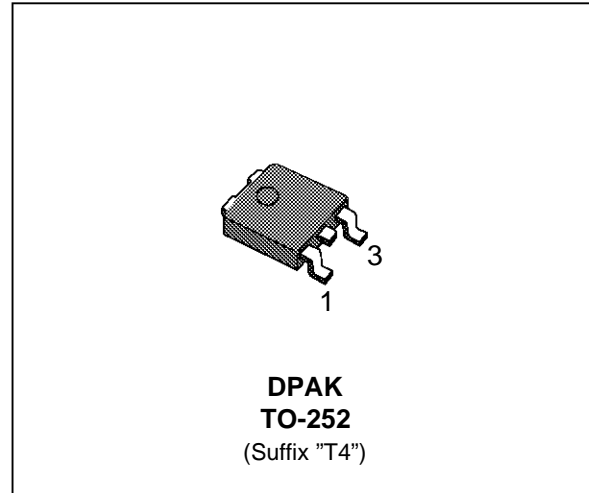
- SGS-THOMSON PREFERRED SALESTYPES
- SURFACE-MOUNTING TO-252 (DPAK)
POWER PACKAGE IN TAPE & REEL
(SUFFIX "T4")
- ELECTRICAL SIMILAR TO TIP31B/C AND
TIP32B/C

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 _C	Collector Peak Current	5		A
I _B	Base Current	1		A
P _{tot}	Total Dissipation at T _C = 25 °C	15		W
T _{stg}	Storage Temperature	-65 to 150		°C
T _j	Max. Operating Junction Temperature	150		°C

For PNP type voltage and current values are negative.

MJD31B/31C MJD32B/32C

THERMAL DATA

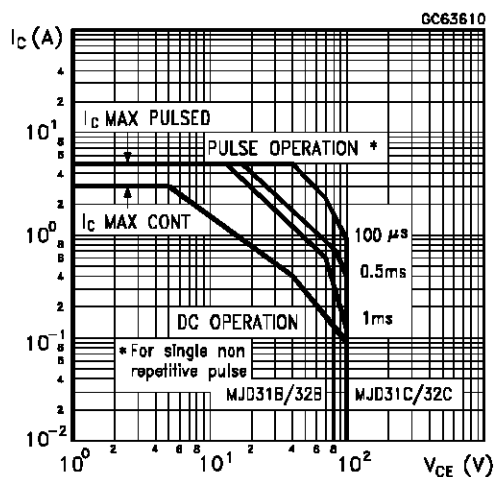
$R_{thj-case}$	Thermal Resistance Junction-case	Max	8.33	$^{\circ}C/W$
$R_{thj-amb}$	Thermal Resistance Junction-ambient	Max	100	$^{\circ}C/W$

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

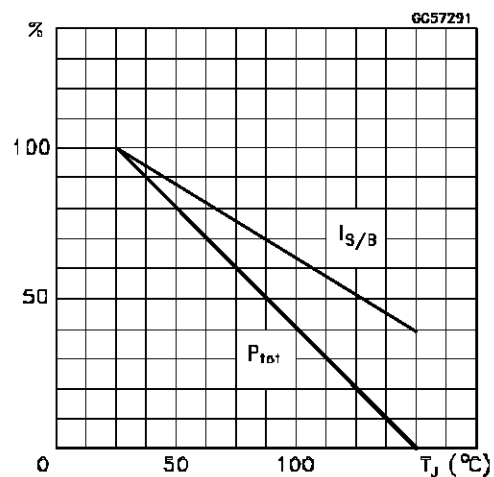
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{ces}	Collector Cut-off Current ($v_{bE} = 0$)	$V_{CB} = \text{Max Rating}$			20	μA
I_{CEO}	Collector Cut-off Current ($i_B = 0$)	$V_{CB} = 60 V$			50	μA
I_{EBO}	Emitter Cut-off Current ($I_C = 0$)	$V_{EB} = 5 V$			0.1	mA
$V_{CEO(sus)}$	Collector-Emitter Sustaining Voltage	$I_C = 30 \text{ mA}$ for MJD31B/32B for MJD31C/32C	80 100			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 μs , duty cycle $\leq 2\%$
For PNP type voltage and current values are negative.

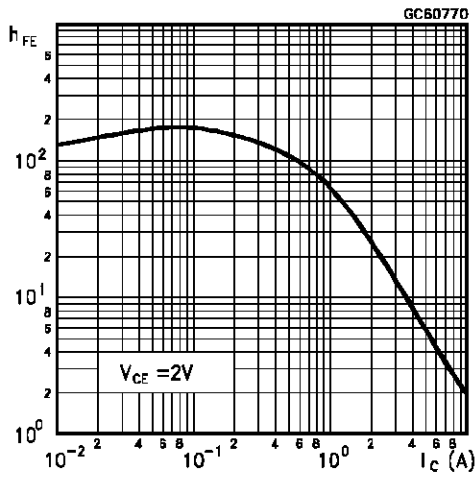
Safe Operating Areas



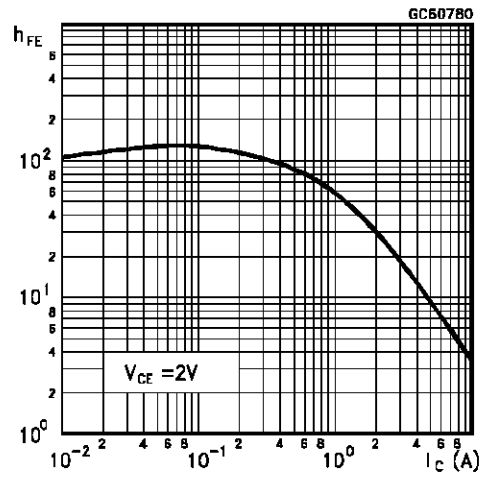
Derating Curve



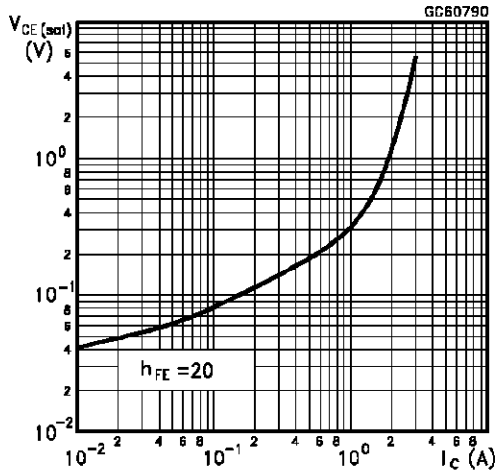
DC Current Gain (NPN type)



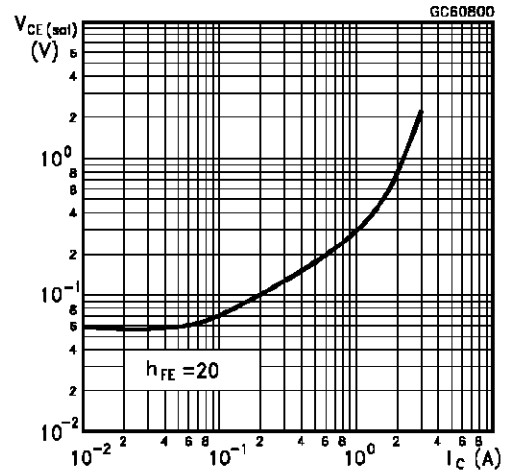
DC Current Gain (PNP type)



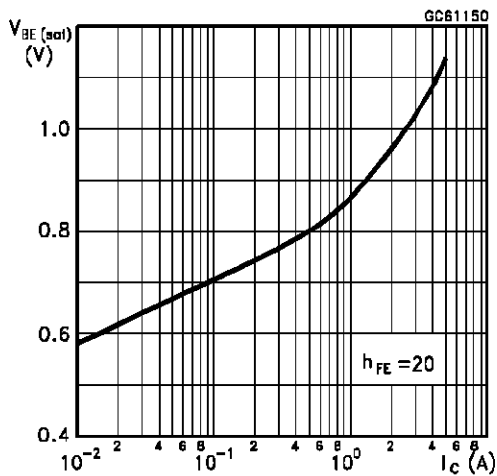
Collector-Emitter Saturation Voltage (NPN type)



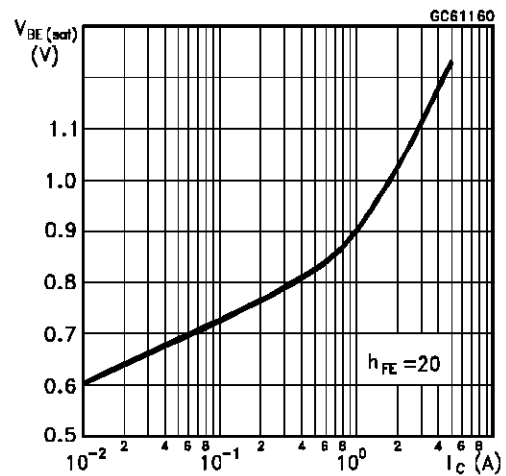
Collector-Emitter Saturation Voltage (PNP type)



Base-Emitter Saturation Voltage (NPN type)

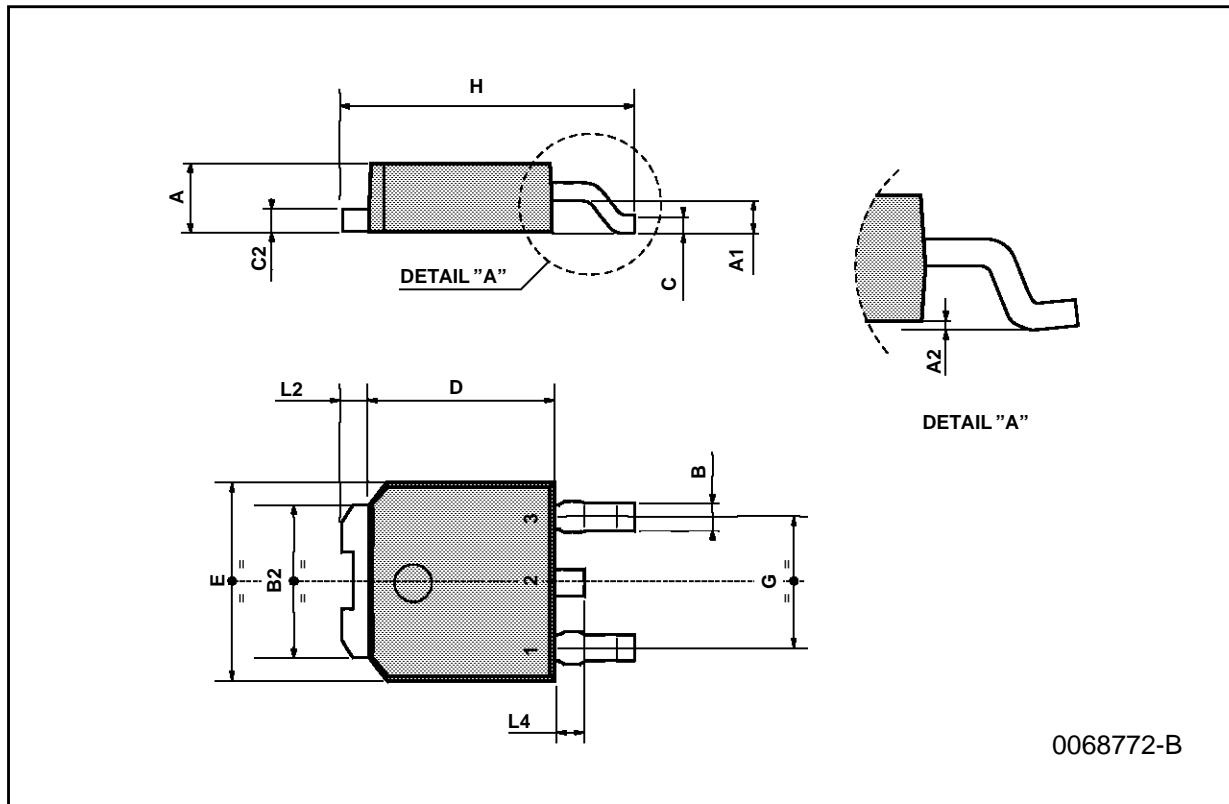


Base-Emitter Saturation Voltage (PNP type)



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



Information furnished is believed to be accurate and reliable. However, SGS-THOMSON Microelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of SGS-THOMSON Microelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. SGS-THOMSON Microelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of SGS-THOMSON Microelectronics.

© 1994 SGS-THOMSON Microelectronics - All Rights Reserved

SGS-THOMSON Microelectronics GROUP OF COMPANIES
Australia - Brazil - France - Germany - Hong Kong - Italy - Japan - Korea - Malaysia - Malta - Morocco - The Netherlands -
Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A