

COMPLEMENTARY SILICON POWER DARLINGTON TRANSISTORS

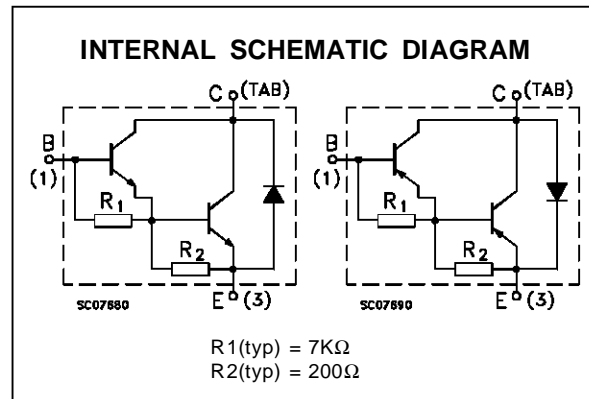
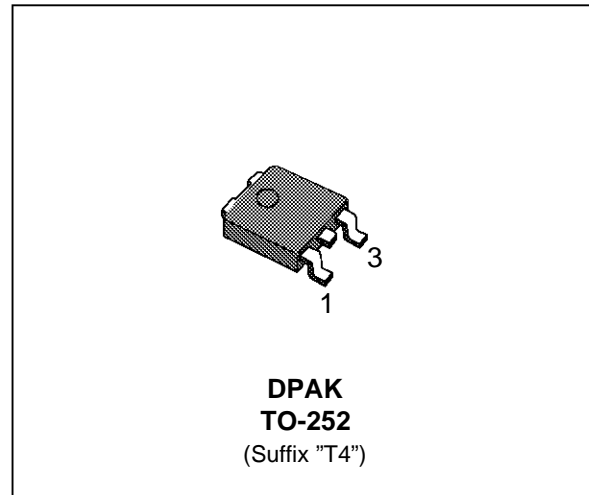
- SGS-THOMSON PREFERRED SALESTYPES
- LOW BASE-DRIVE REQUIREMENTS
- INTEGRATED ANTIPARALLEL COLLECTOR-EMITTER DIODE
- SURFACE-MOUNTING TO-252 (DPAK) POWER PACKAGE IN TAPE & REEL (SUFFIX "T4")
- ELECTRICAL SIMILAR TO TIP112 AND TIP117

APPLICATIONS

- GENERAL PURPOSE SWITCHING AND AMPLIFIER

DESCRIPTION

The MJD112 and MJD117 form complementary PNP - NPN pairs. They are manufactured using Epitaxial Base technology for cost-effective performance.



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V _{CBO}	Collector-Base Voltage (I _E = 0)	100	V
V _{CEO}	Collector-Emitter Voltage (I _B = 0)	100	V
V _{EBO}	Emitter-Base Voltage (I _C = 0)	5	V
I _C	Collector Current	2	A
I _C	Collector Peak Current	4	A
I _B	Base Current	0.05	A
P _{tot}	Total Dissipation at T _c = 25 °C	20	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.

MJD112/MJD117

THERMAL DATA

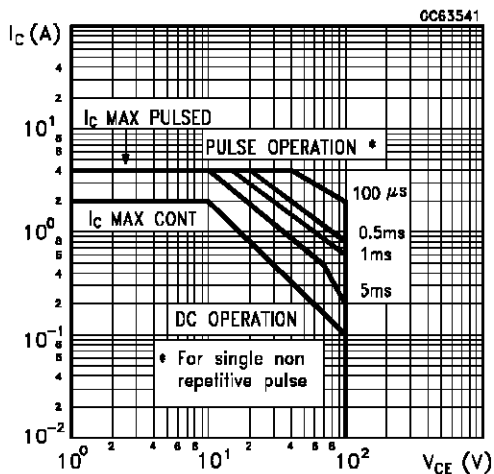
$R_{thj-case}$	Thermal Resistance Junction-case	Max	6.25	$^{\circ}\text{C}/\text{W}$
$R_{thj-amb}$	Thermal Resistance Junction-ambient	Max	100	$^{\circ}\text{C}/\text{W}$

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

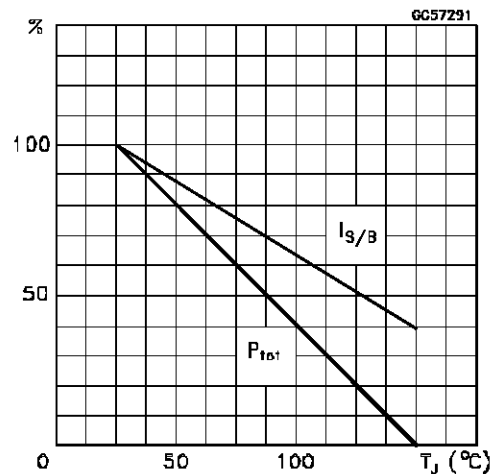
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cut-off Current ($i_E = 0$)	$V_{CB} = 100\text{ V}$ $V_{CB} = 80\text{ V}$			0.02 0.01	mA mA
I_{CEO}	Collector Cut-off Current ($i_B = 0$)	$V_{CB} = 50\text{ V}$			0.02	mA
I_{CEX}	Collector Cut-off Current	$V_{CB} = 80\text{ V}$ $V_{BE} = -1.5\text{ V}$ $V_{CB} = 80\text{ V}$ $V_{BE} = -1.5\text{ V}$ $T_c = 125^{\circ}\text{C}$			0.01 0.5	mA mA
I_{EBO}	Emitter Cut-off Current ($I_C = 0$)	$V_{EB} = 5\text{ V}$			2	mA
$V_{CEO(sus)}$	Collector-Emitter Sustaining Voltage	$I_C = 30\text{ mA}$	100			V
$V_{CE(sat)*}$	Collector-Emitter Saturation Voltage	$I_C = 2\text{ A}$ $I_B = 8\text{ mA}$ $I_C = 4\text{ A}$ $I_B = 40\text{ mA}$			2 3	V V
$V_{BE(sat)*}$	Collector-Base Saturation Voltage	$I_C = 4\text{ A}$ $I_B = 40\text{ mA}$			4	V
$V_{BE(on)*}$	Base-Emitter Voltage	$I_C = 2\text{ A}$ $V_{CE} = 3\text{ V}$			2.8	V
h_{FE*}	DC Current Gain	$I_C = 0.5\text{ A}$ $V_{CE} = 3\text{ V}$ $I_C = 2\text{ A}$ $V_{CE} = 3\text{ V}$ $I_C = 4\text{ A}$ $V_{CE} = 3\text{ V}$	500 1000 200		12000	

* Pulsed: Pulse duration = 300 μs , duty cycle $\leq 2\%$

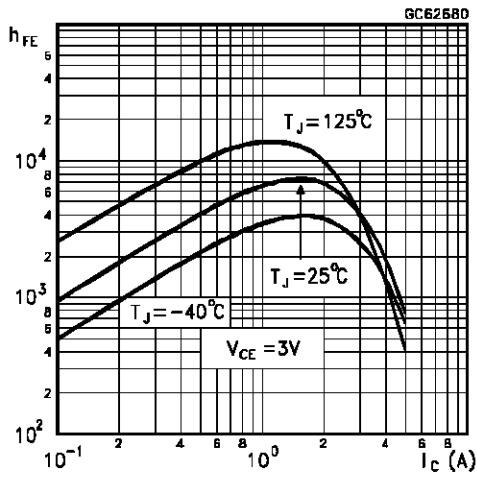
Safe Operating Areas



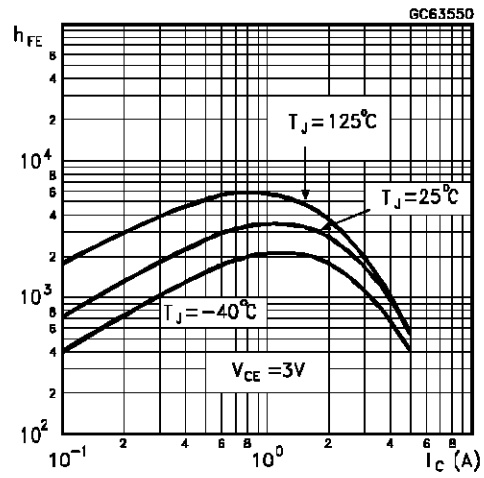
Derating Curve



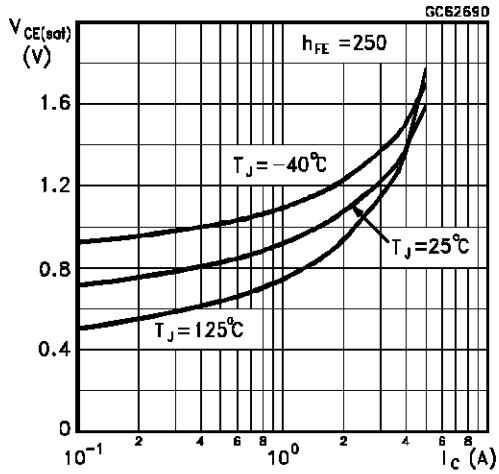
DC Current Gain (NPN type)



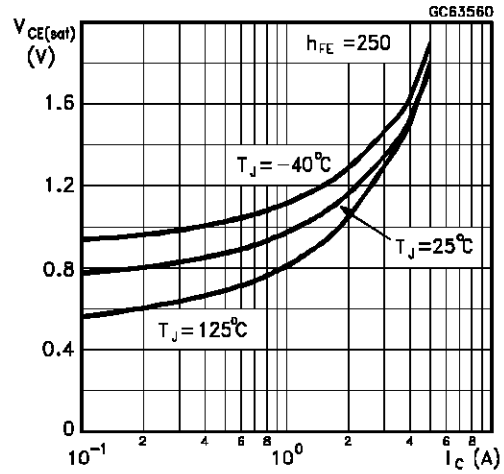
DC Current Gain (PNP type)



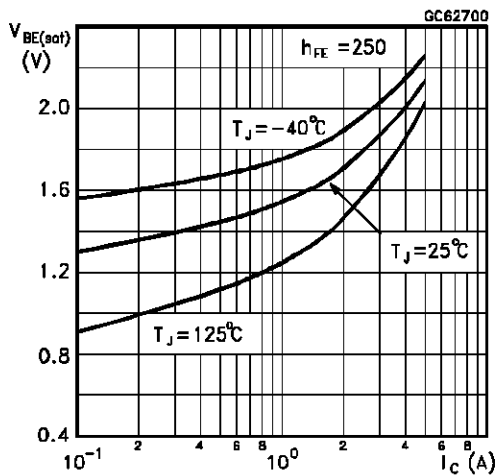
Collector-Emitter Saturation Voltage (NPN type)



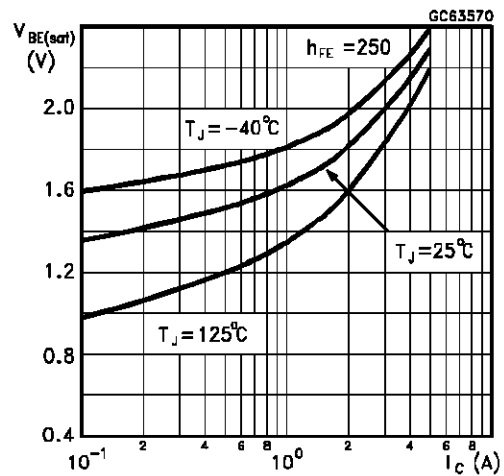
Collector-Emitter Saturation Voltage (PNP type)



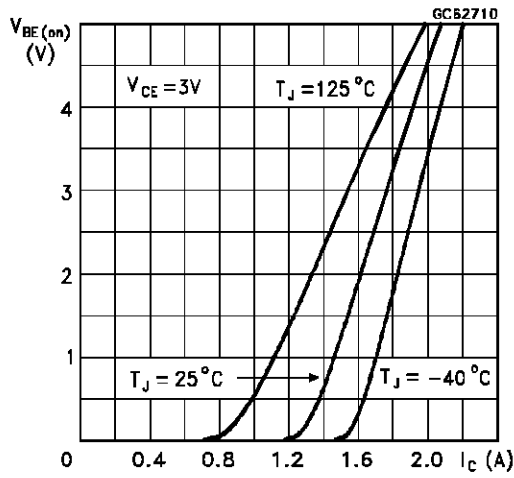
Base-Emitter Saturation Voltage (NPN type)



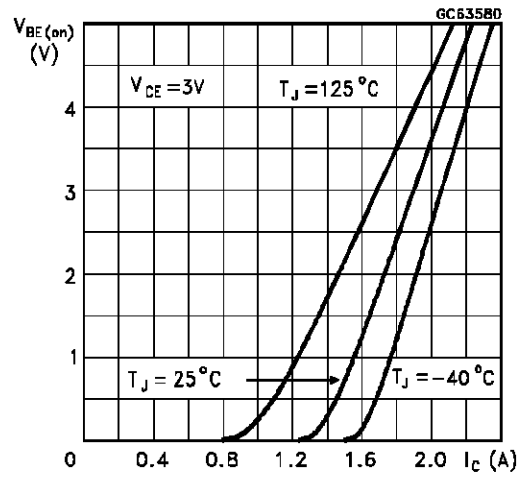
Base-Emitter Saturation Voltage (PNP type)



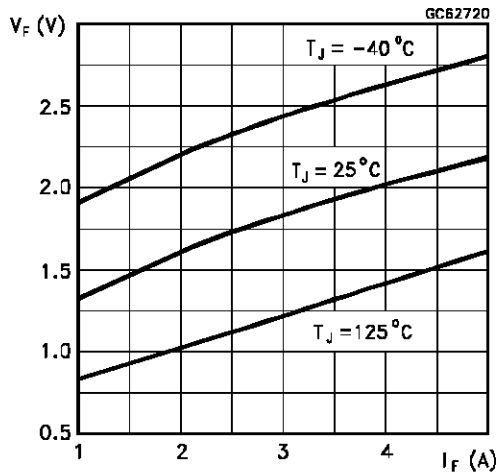
Base-Emitter On Voltage (NPN type)



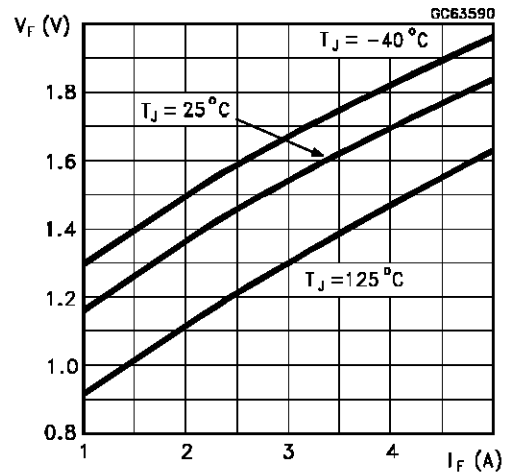
Base-Emitter On Voltage (PNP type)



Freewheel Diode Forward Voltage (NPN types)

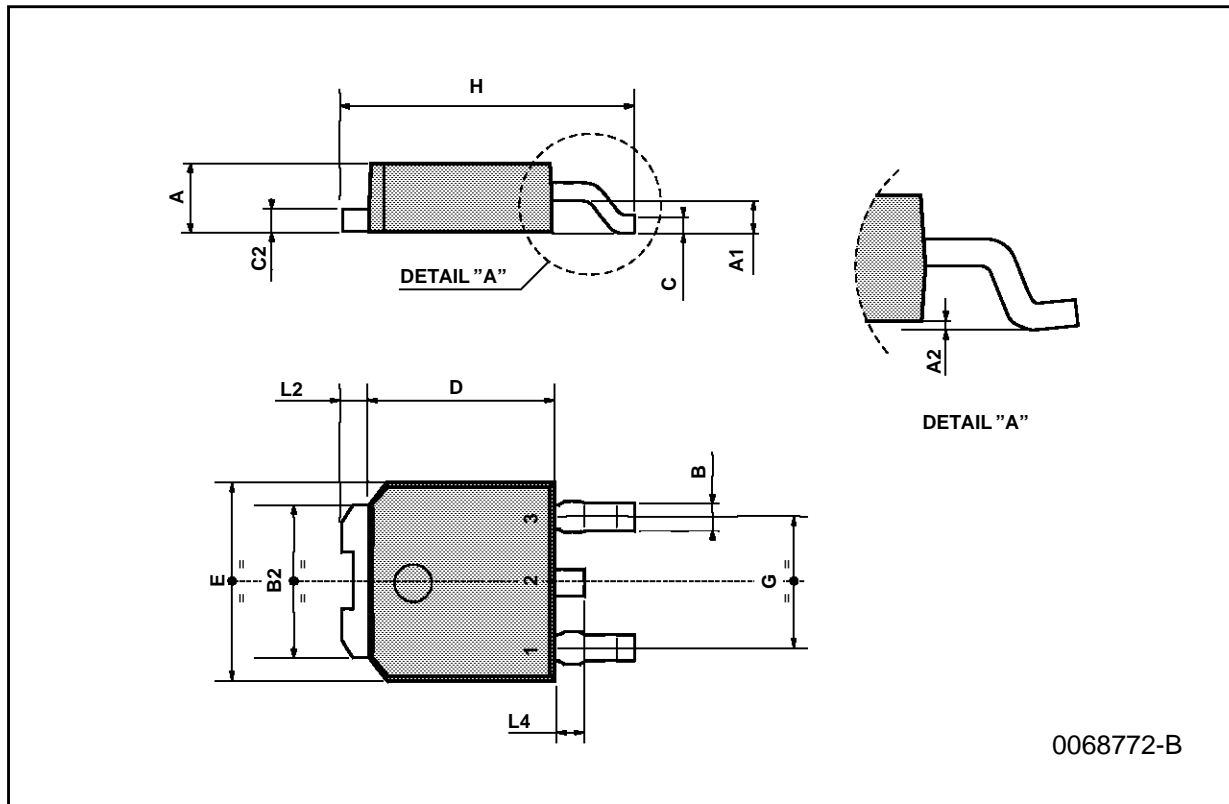


Freewheel Diode Forward Voltage (PNP types)



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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