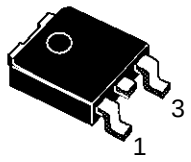
SGS-THOMSON MICROELECTRONICS

MJD112
MJD117

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



DPAK
TO-252
(Suffix "T4")

APPLICATIONS

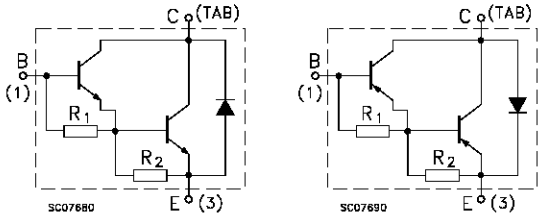
- GENERAL PURPOSE SWITCHING AND AMPLIFIER

DESCRIPTION

The MJD112 and MJD117 form complementary PNP - NPN pairs.

They are manufactured using Epitaxial Base technology for cost-effective performance.

INTERNAL SCHEMATIC DIAGRAM



R1(typ) = 7KΩ
R2(typ) = 200Ω

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Emitter 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_{CM}	Collector Peak Current (t_p < 5 ms)	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.

THERMAL DATA

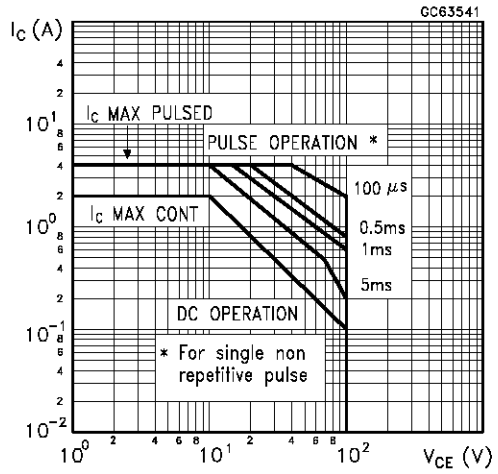
$R_{thj\text{-}case}$	Thermal Resistance Junction-case	Max	6.25	$^oC/W$
$R_{thj\text{-}amb}$	Thermal Resistance Junction-ambient	Max	100	$^oC/W$

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

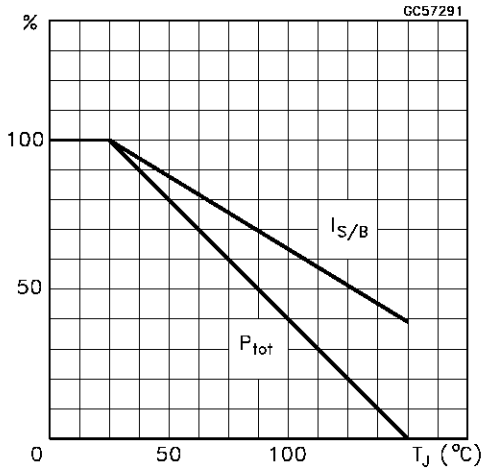
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cut-off Current (I_E = 0)	V_{CB} = 100 V V_{CB} = 80 V			0.02 0.01	mA mA
I_{CEO}	Collector Cut-off Current (I_B = 0)	V_{CE} = 50 V			0.02	mA
I_{CEX}	Collector Cut-off Current	V_{CB} = 80 V V_{BE} = -1.5V V_{CB} = 80 V V_{BE} = -1.5V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

* Pulsed: Pulse duration = 300 μs, duty cycle ≤ 2 %

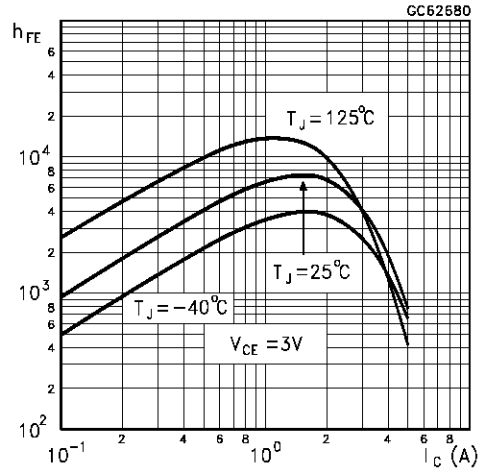
Safe Operating Areas



Derating Curve



DC Current Gain (NPN type)



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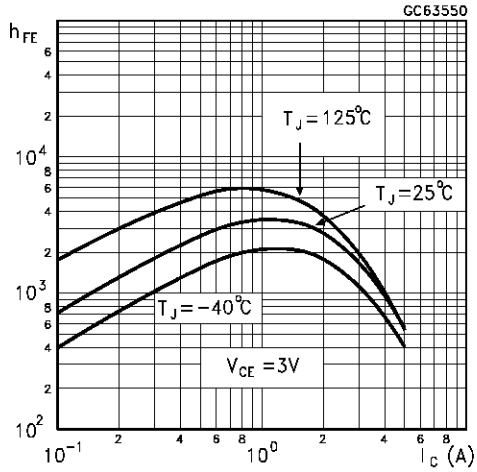
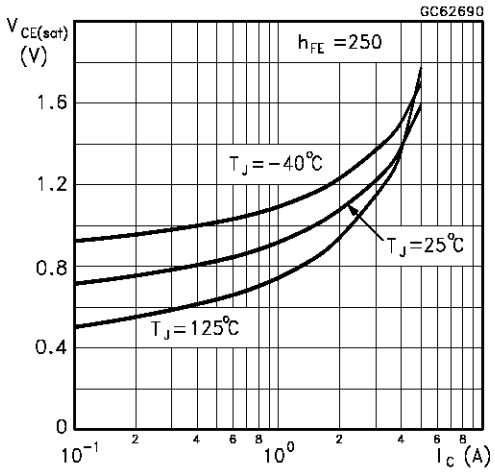
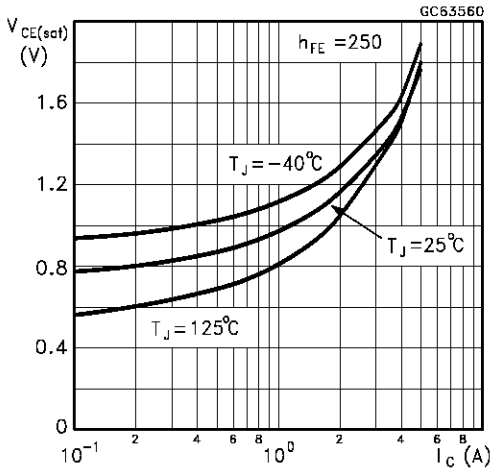


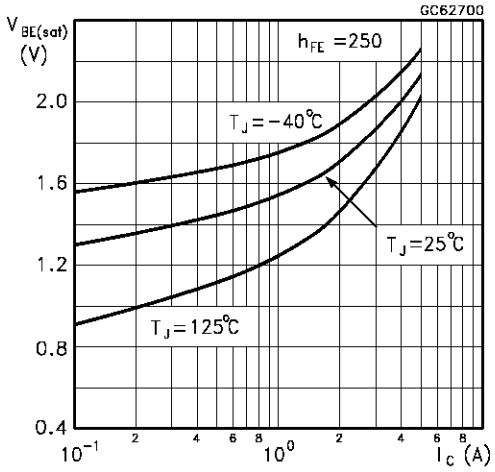
Collector-Emitter Saturation Voltage (NPN type)



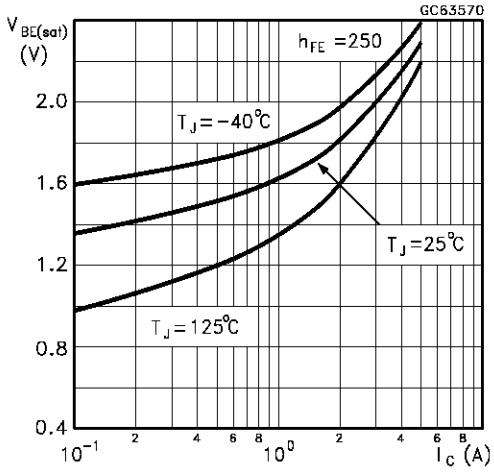
Collector-Emitter Saturation Voltage (PNP type)



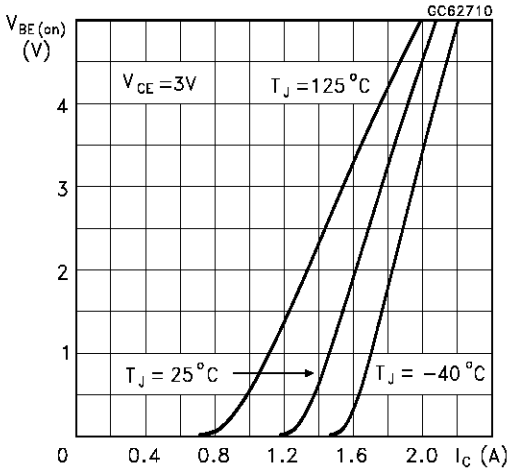
Base-Emitter Saturation Voltage (NPN type)



Base-Emitter Saturation Voltage (PNP type)



Base-Emitter On Voltage (NPN type)



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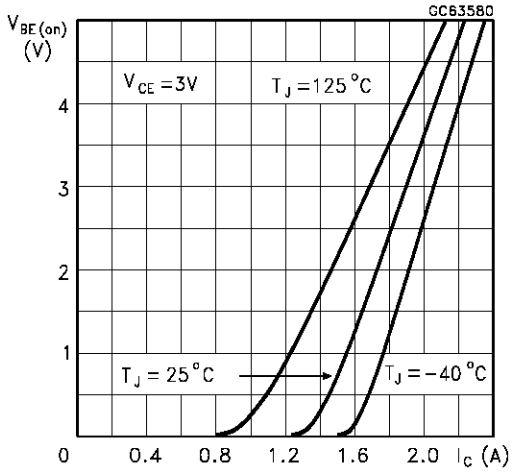
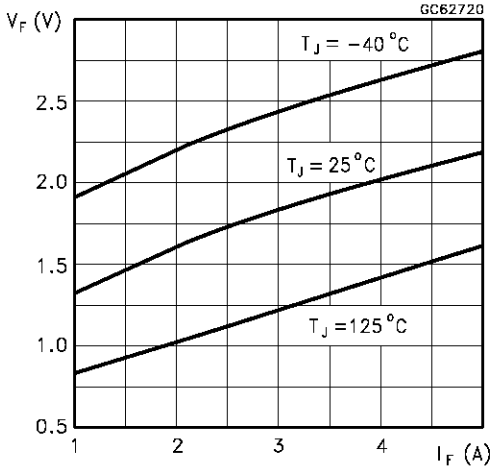
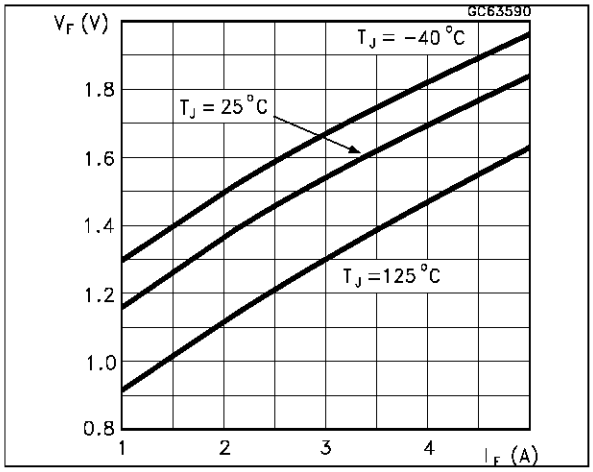


Freewheel Diode Forward Voltage (NPN types)

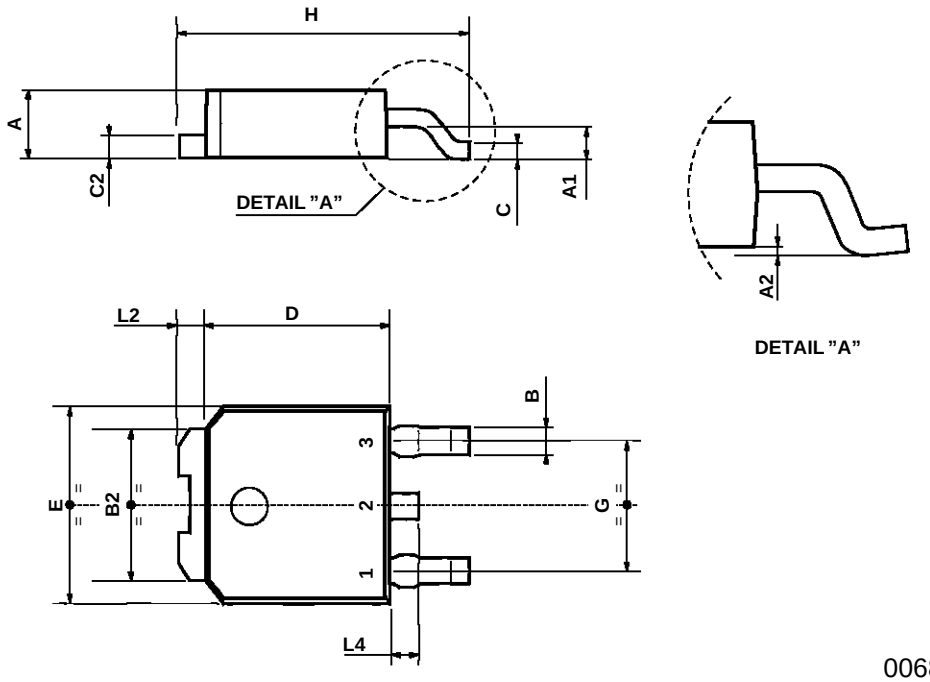


Freewheel Diode Forward Voltage (PNP types)



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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