



MJD112
MJD117

COMPLEMENTARY SILICON POWER DARLINGTON TRANSISTORS

- STMicroelectronics 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

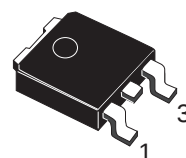
APPLICATIONS

- GENERAL PURPOSE SWITCHING AND AMPLIFIER

DESCRIPTION

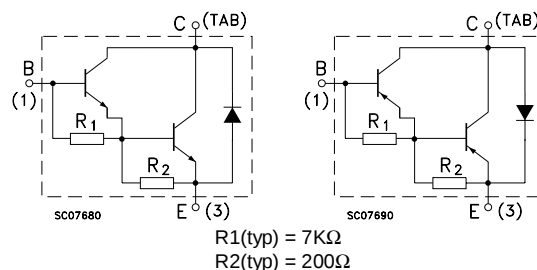
The MJD112 and MJD117 form complementary PNP - NPN pairs.

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



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

INTERNAL SCHEMATIC DIAGRAM



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

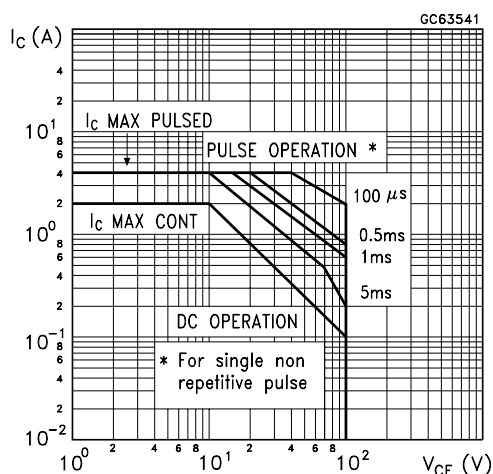
R _{thj-case}	Thermal Resistance Junction-case	Max	6.25	°C/W
R _{thj-amb}	Thermal Resistance Junction-ambient	Max	100	°C/W

ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

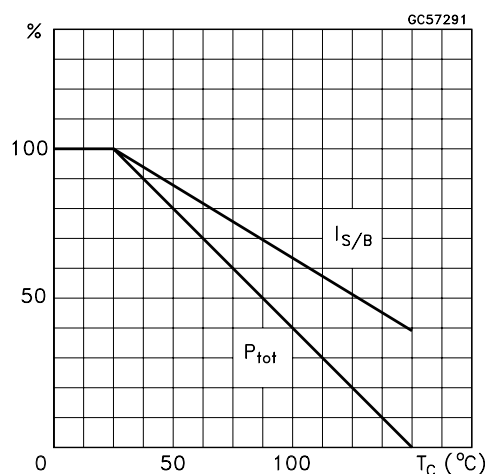
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I _{CBO}	Collector Cut-off Current (I _E = 0)	V _{CB} = 100 V V _{CB} = 80 V			0.02 0.01	mA mA
I _{CEO}	Collector Cut-off Current (I _B = 0)	V _{CE} = 50 V			0.02	mA
I _{CEX}	Collector Cut-off Current (V _{BE} = -1.5V)	V _{CE} = 80 V V _{CE} = 80 V T _C = 125 °C			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 _B = 0)	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)*}	Base-Emitter Saturation Voltage	I _C = 4 A I _B = 40 mA			4	V
V _{BE(on)*}	Base-Emitter On 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 %
For PNP types voltage and current values are negative.

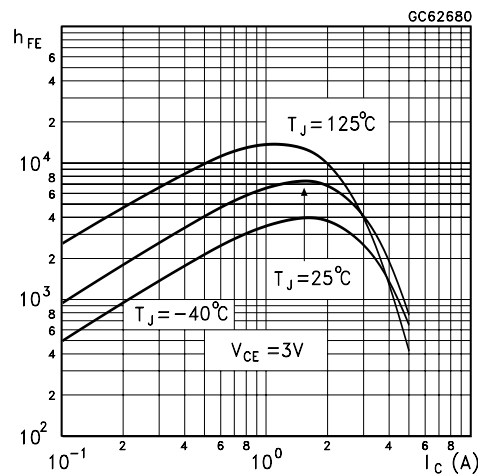
Safe Operating Areas



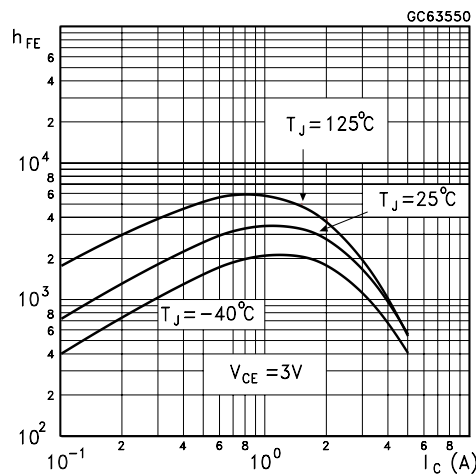
Derating Curve



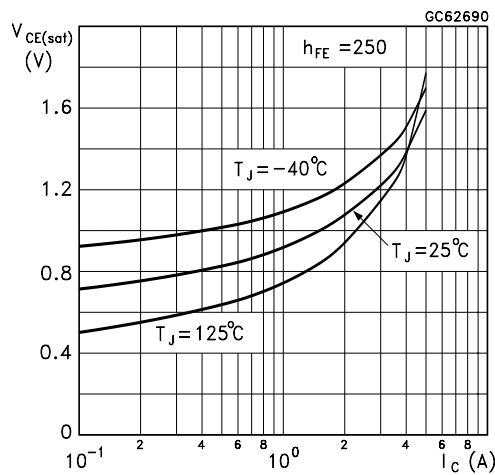
DC Current Gain (NPN type)



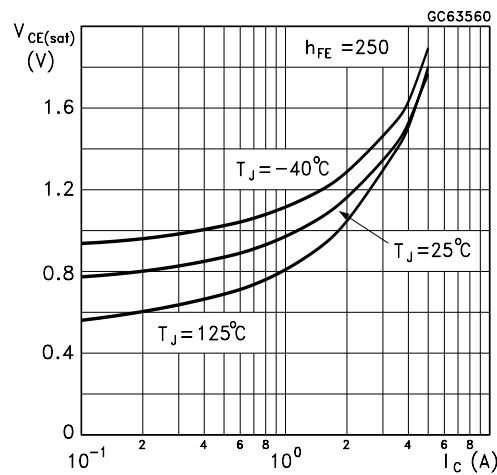
DC Current Gain (NPN type)



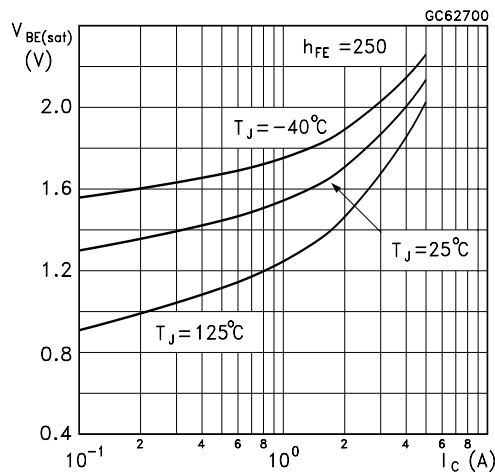
Collector-Emitter Saturation Voltage (NPN type)



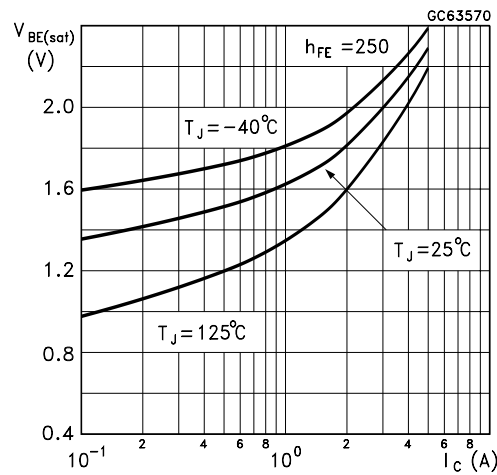
Collector-Emitter Saturation Voltage (PNP type)



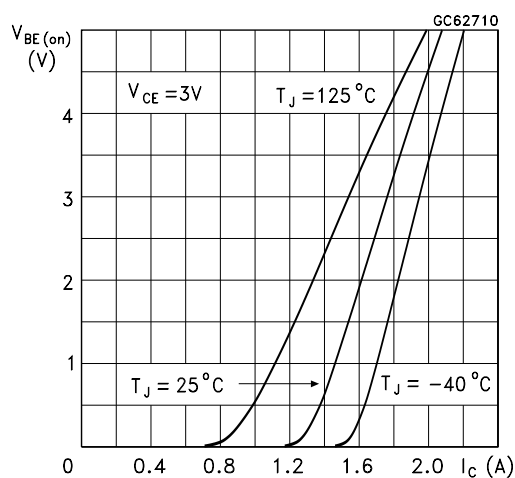
Base-Emitter Saturation Voltage (NPN type)



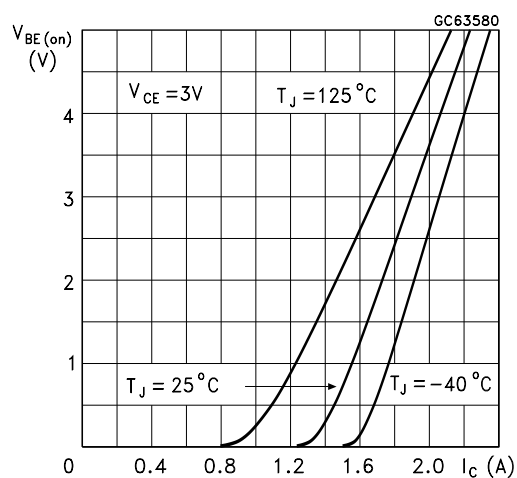
Base-Emitter Saturation Voltage (PNP type)



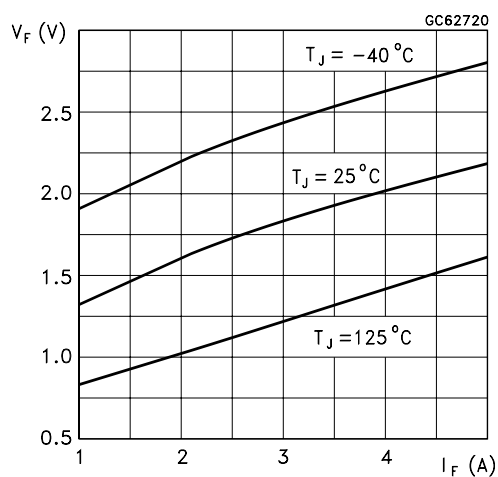
Base-Emitter On Voltage (NPN type)



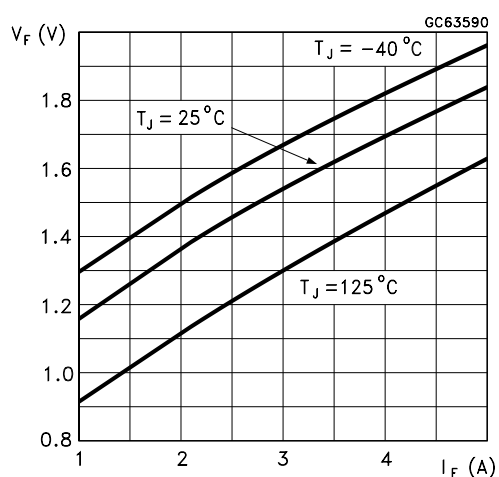
Base-Emitter On Voltage (PNP type)



Freewheel Diode Forward Voltage (NPN types)

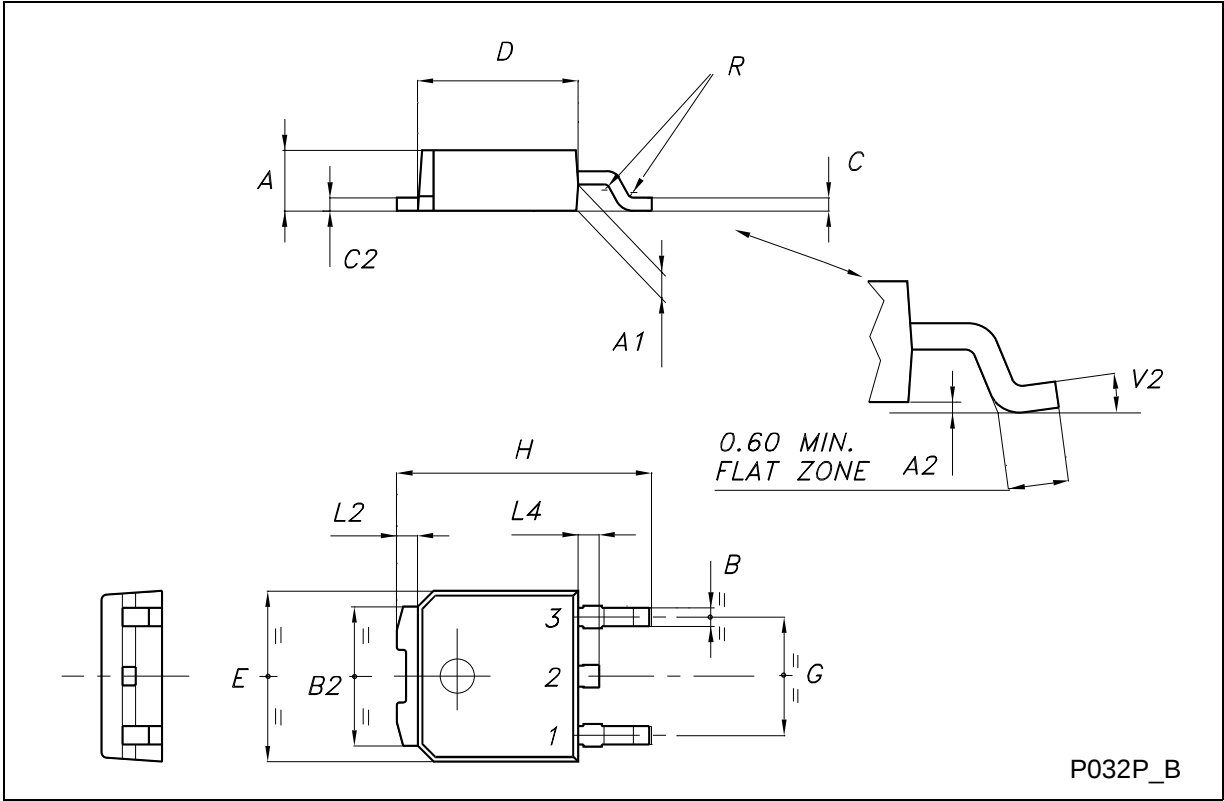


Freewheel Diode Forward Voltage (PNP types)



TO-252 (DPAK) MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	2.20		2.40	0.087		0.094
A1	0.90		1.10	0.035		0.043
A2	0.03		0.23	0.001		0.009
B	0.64		0.90	0.025		0.035
B2	5.20		5.40	0.204		0.213
C	0.45		0.60	0.018		0.024
C2	0.48		0.60	0.019		0.024
D	6.00		6.20	0.236		0.244
E	6.40		6.60	0.252		0.260
G	4.40		4.60	0.173		0.181
H	9.35		10.10	0.368		0.398
L2		0.8			0.031	
L4	0.60		1.00	0.024		0.039
V2	0°		8°	0°		0°



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