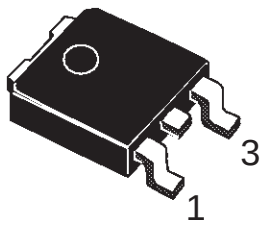
MJD122
MJD127

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 TIP122 AND TIP127



DPAK
TO-252
(Suffix "T4")

APPLICATIONS

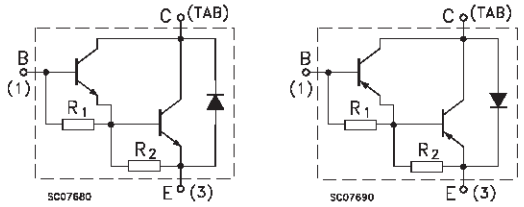
- GENERAL PURPOSE SWITCHING AND AMPLIFIER.

DESCRIPTION

The MJD122 and MJD127 form complementary NPN - PNP pairs.

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

INTERNAL SCHEMATIC DIAGRAM



R_1 Typ. = 10 KΩ R_2 Typ. = 150 Ω

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter		Value	Unit
		NPN	MJD122	
		PNP	MJD127	
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		5	A
I_{CM}	Collector Peak Current		8	A
I_B	Base Current		100	mA
P_{tot}	Total Dissipation at $T_{case} \leq 25\ ^oC$		20	W
T_{stg}	Storage Temperature		-65 to 150	^oC
T_j	Max. Operating Junction Temperature		150	^oC

For PNP types voltage and current values are negative.

THERMAL DATA

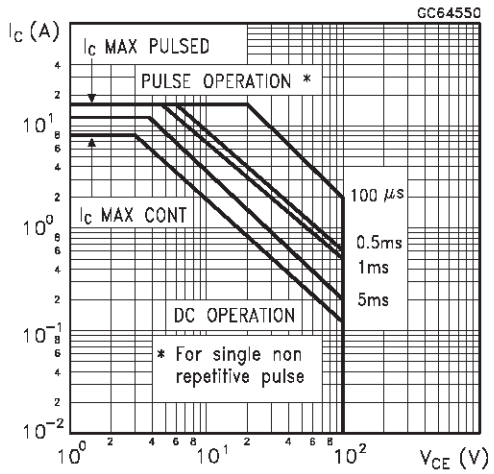
$R_{thj\text{-}case}$	Thermal Resistance Junction-case	Max	6.25	^{o}C/W
$R_{thj\text{-}amb}$	Thermal Resistance Junction-ambient	Max	100	^{o}C/W

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

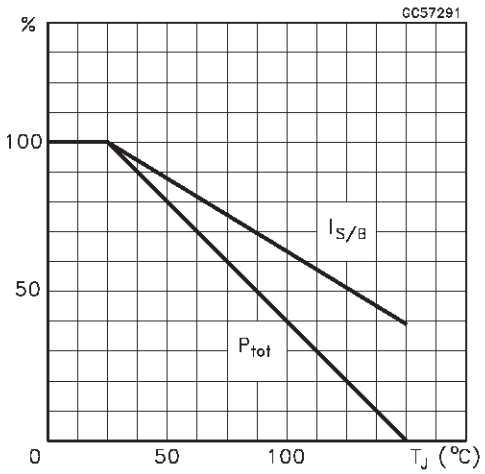
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cut-off Current (I_E = 0)	V_{CB} = 100 V			10	µA
I_{CEO}	Collector Cut-off Current (I_B = 0)	V_{CE} = 50 V			10	µA
I_{CEX}	Collector Cut-off Current	V_{CE} = 100 V V_{BE} = -1.5V V_{CE} = 100 V V_{BE} = -1.5V T_C = 125°C			10 500	µA µA
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 = 4 A I_B = 16 mA I_C = 8 A I_B = 80 mA			2 4	V V
$V_{BE(sat)}$*	Base-Emitter Saturation Voltage	I_C = 8 A I_B = 80 mA			4.5	V
$V_{BE(on)}$*	Base-Emitter Voltage	I_C = 4 A V_{CE} = 4 V			2.8	V
h_{FE}*	DC Current Gain	I_C = 4 A V_{CE} = 4 V I_C = 8 A V_{CE} = 4 V	1000 100		12000	

* Pulsed: Pulse duration = 300 µs, duty cycle ≤ 2 %
For PNP type voltage and current values are negative.

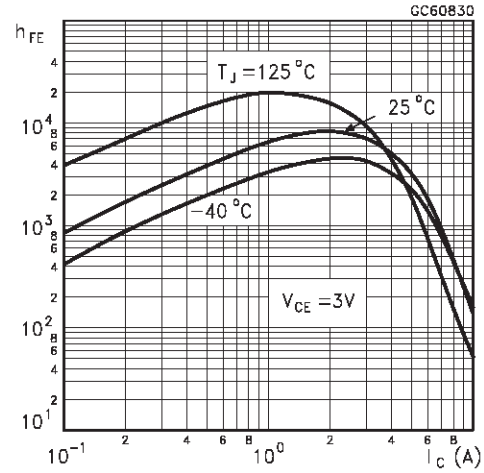
Safe Operating Area



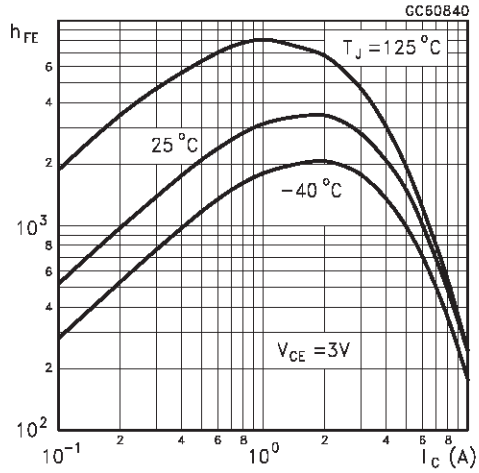
Derating Curve



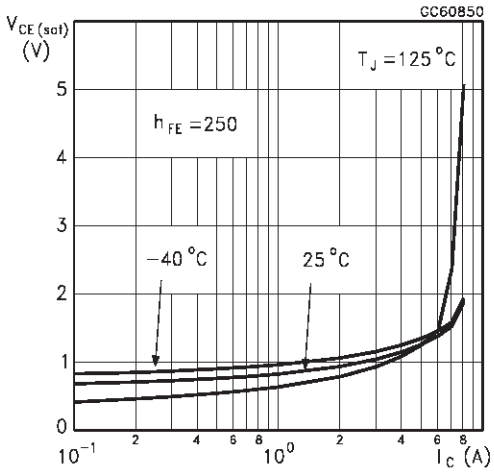
DC Current Gain (NPN type)



DC Current Gain (PNP type)



Collector Emitter Saturation Voltage (NPN type)



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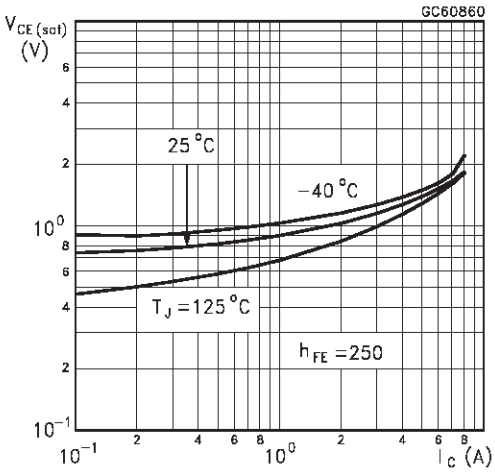
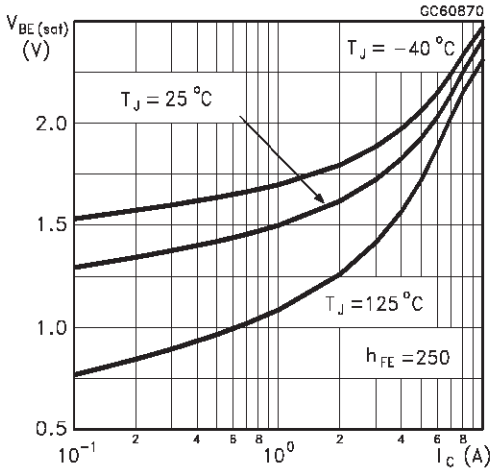


Base Emitter Saturation Voltage (NPN type)



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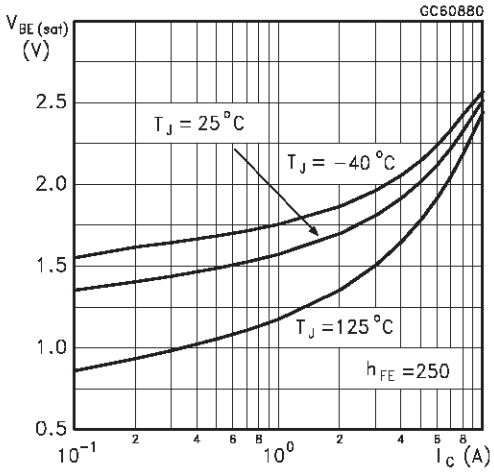
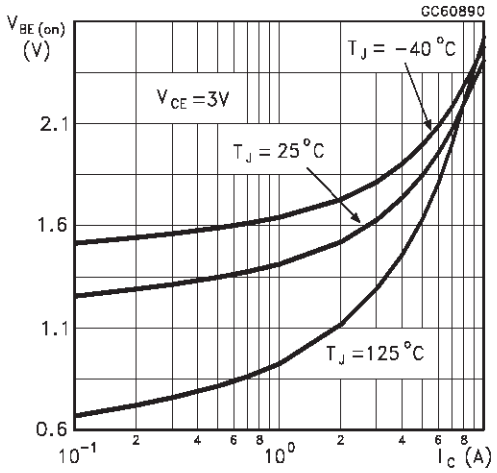


Base Emitter On Voltage (NPN type)



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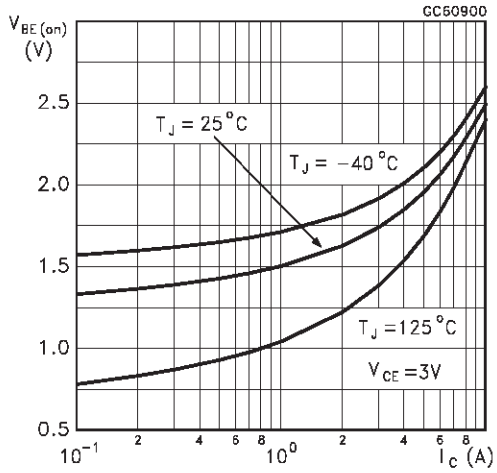
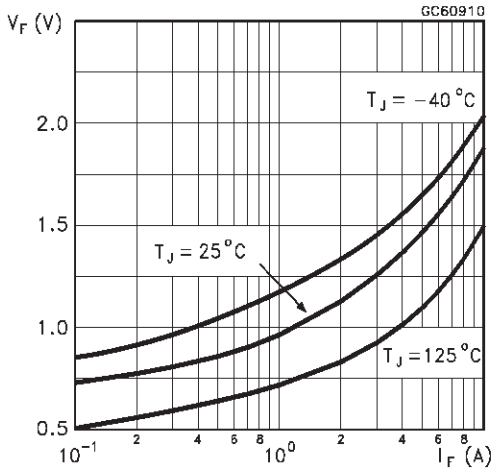


Freewheel Diode Forward Voltage (NPN type)



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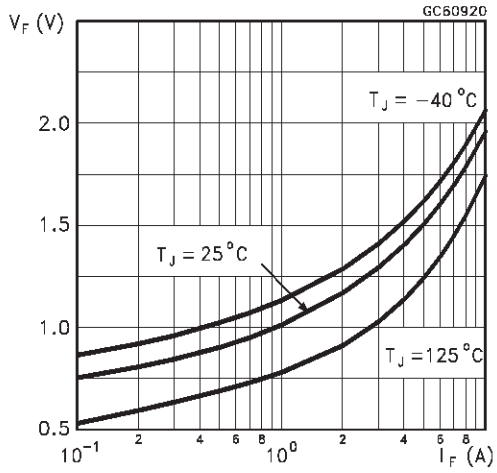
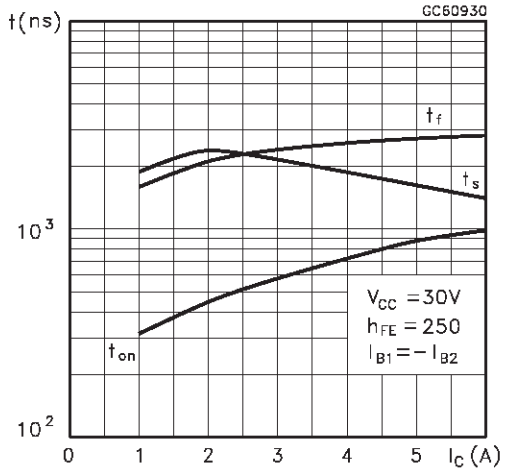
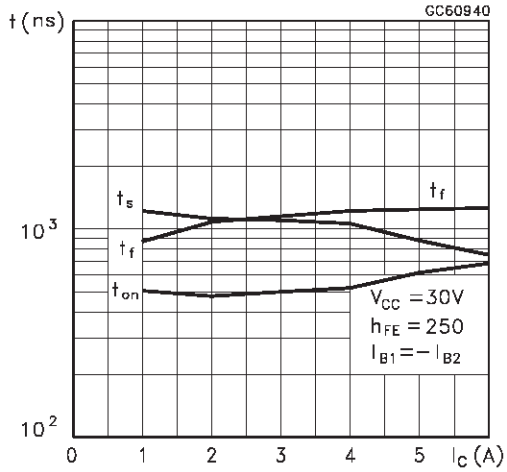


Switching Time Resistive Load (NPN type)

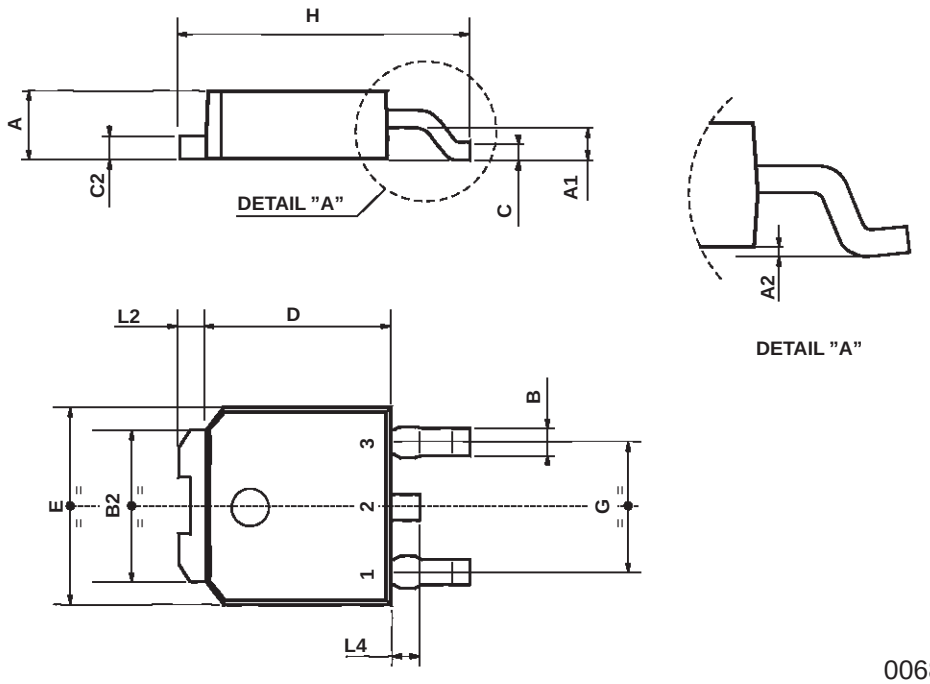


Switching Time resistive Load (PNP type)



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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