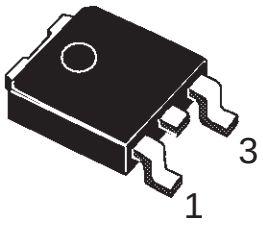
MJD122
MJD127

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

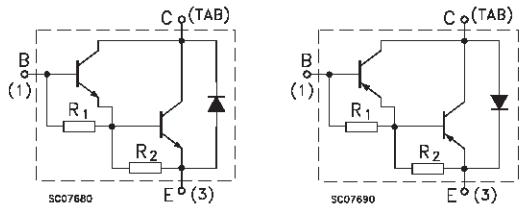
- GENERAL PURPOSE SWITCHING AND AMPLIFIER.

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

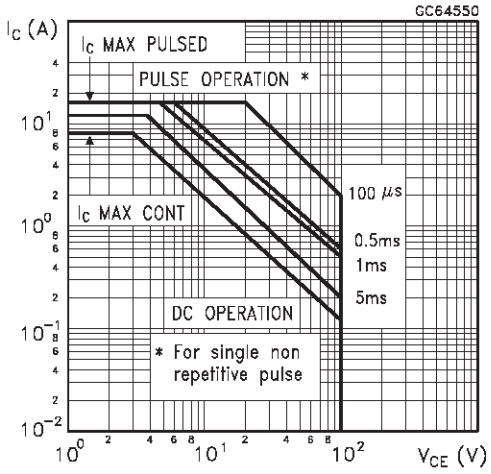
$R_{thj\text{-}case}$	Thermal Resistance Junction-case	Max	6.25	$^oC/W$
$R_{thj\text{-}amb}$	Thermal Resistance Junction-ambient	Max	100	$^oC/W$

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

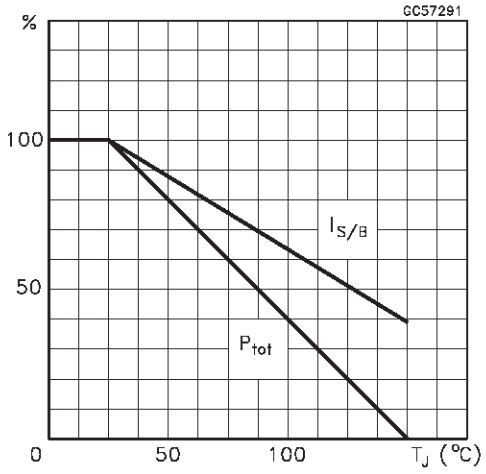
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cut-off Current (I_E = 0)	V_{CB} = 100 V			10	µA
I_{CEO}	Collector Cut-off Current (I_B = 0)	V_{CE} = 50 V			10	µA
I_{CEX}	Collector Cut-off Current	V_{CE} = 100 V V_{BE} = -1.5V V_{CE} = 100 V V_{BE} = -1.5V T_C = 125^oC			10 500	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.

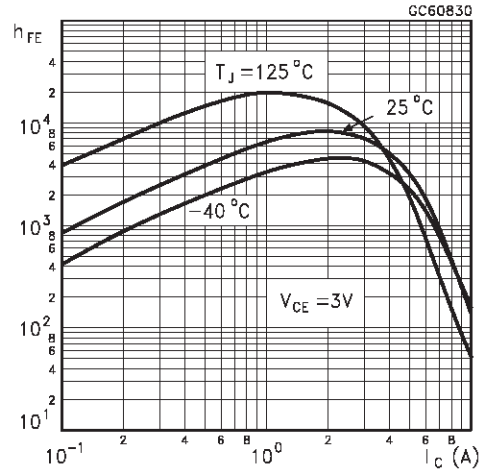
Safe Operating Area



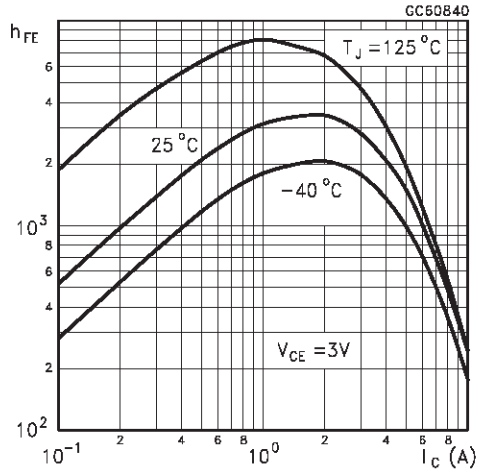
Derating Curve



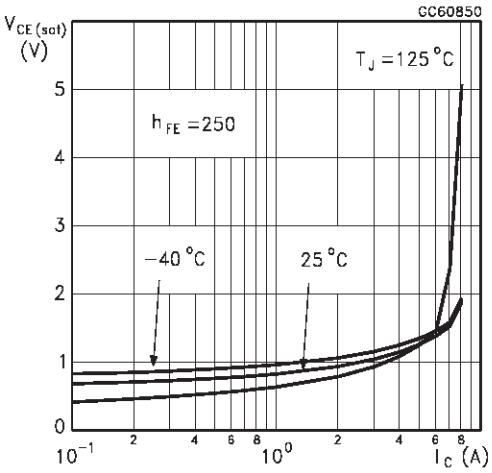
DC Current Gain (NPN type)



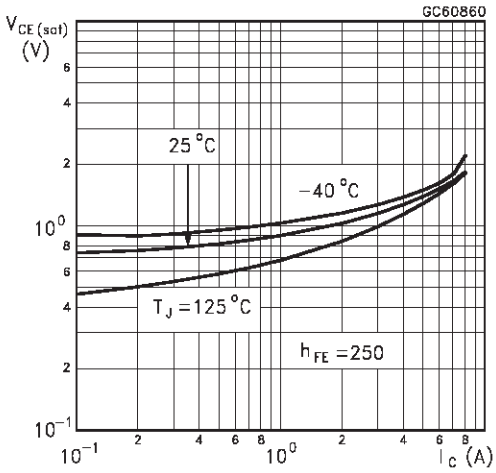
DC Current Gain (PNP type)



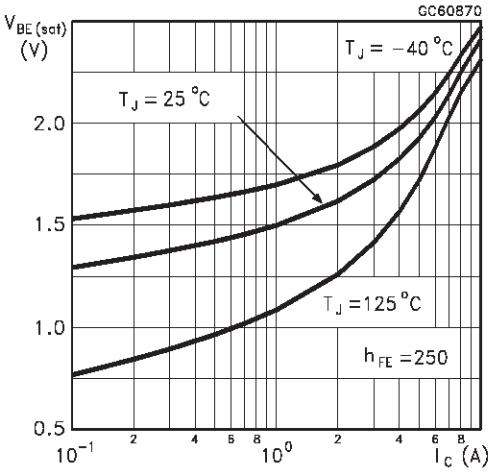
Collector Emitter Saturation Voltage (NPN type)



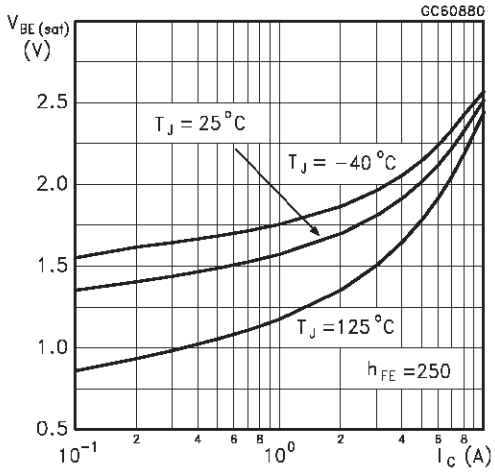
Collector Emitter Saturation Voltage (PNP type)



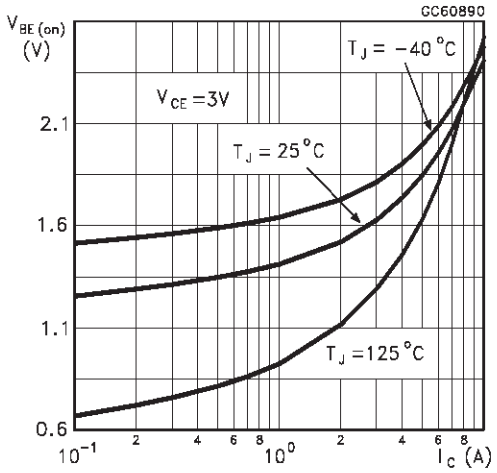
Base Emitter Saturation Voltage (NPN type)



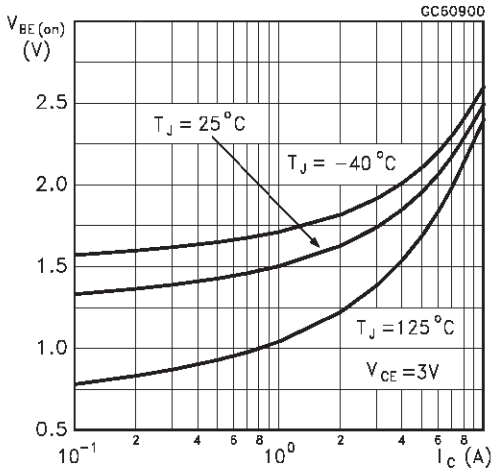
Base Emitter Saturation Voltage (PNP type)



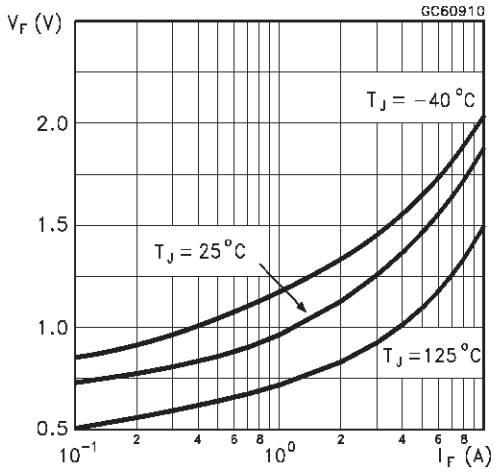
Base Emitter On Voltage (NPN type)



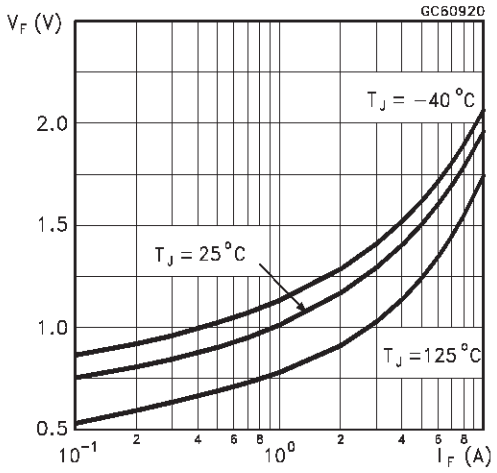
Base Emitter On Voltage (PNP type)



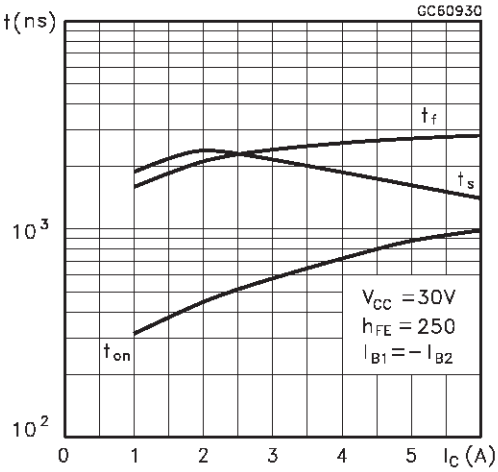
Freewheel Diode Forward Voltage (NPN type)



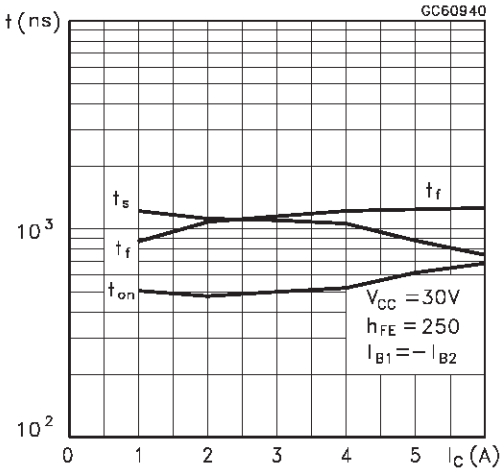
Freewheel Diode Forward Voltage (PNP type)



Switching Time Resistive Load (NPN type)

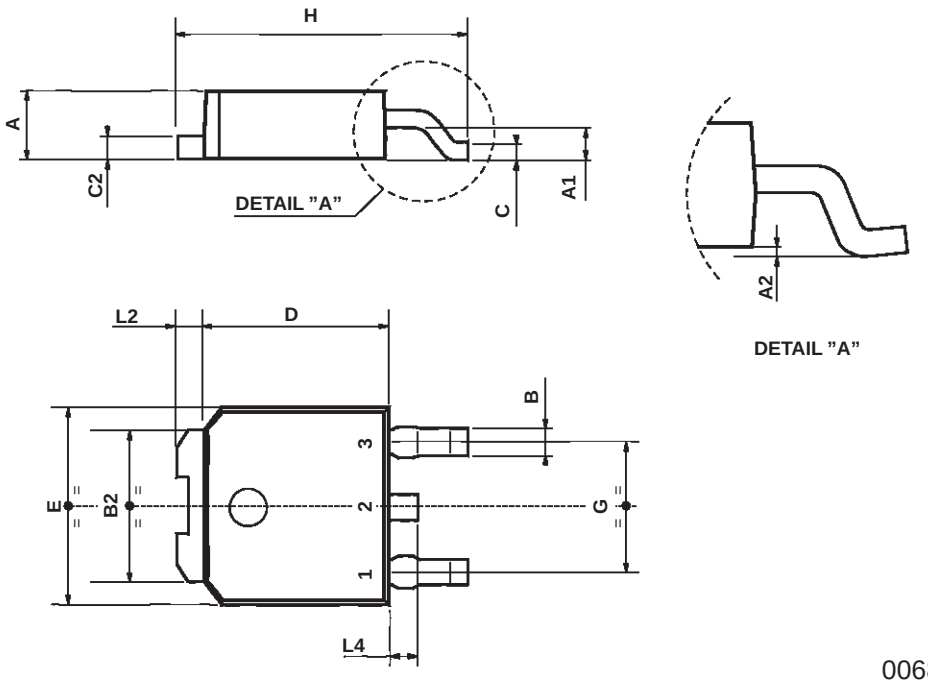


Switching Time resistive Load (PNP type)



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



0068772-B