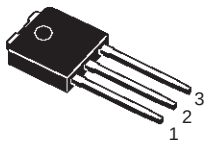
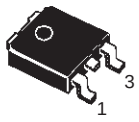
MJD122-1 / MJD122T4
MJD127-1 / MJD127T4

COMPLEMENTARY POWER DARLINGTON TRANSISTORS

Ordering Code	Marking	Package	Shipment
MJD122T4	MJD122	TO-252 (DPAK)	Tape & Reel
MJD122-1	MJD122	TO-251 (IPAK)	Tube
MJD127T4	MJD127	TO-252 (DPAK)	Tape & Reel
MJD127-1	MJD127	TO-251 (IPAK)	Tube



TO-251
IPAK
(Suffix "-1")



TO-252
DPAK
(Suffix "T4")

- STMicroelectronics PREFERRED SALESTYPES
- LOW BASE-DRIVE REQUIREMENTS
- INTEGRATED ANTIPARALLEL COLLECTOR-EMITTER DIODE
- THROUGH HOLE TO-251 (IPAK) POWER PACKAGE IN TUBE (SUFFIX "-1")
- SURFACE MOUNTING TO-252 (DPAK) POWER PACKAGE IN TAPE & REEL (SUFFIX "T4")
- ELECTRICALLY SIMILAR TO TIP122 AND TIP127

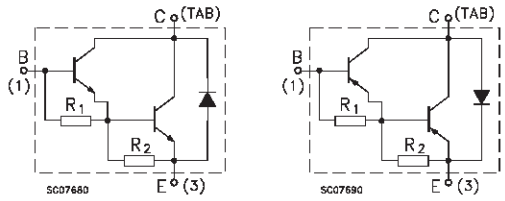
APPLICATIONS:

- GENERAL PURPOSE SWITCHING AND AMPLIFIER

DESCRIPTION

The MJD122 and MJD127 form complementary NPN - PNP pair. 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 (t_p < 5 ms)		8	A
I_B	Base Current		0.1	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 types voltage and current values are negative.

THERMAL DATA

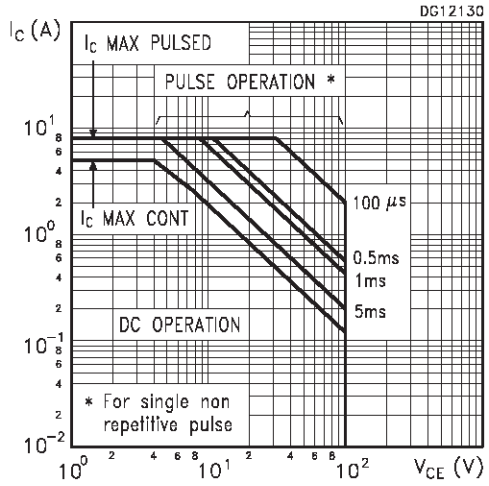
$R_{thj\text{-}case}$	Thermal Resistance Junction-case	Max	6.25	°C/W
$R_{thj\text{-}amb}$	Thermal Resistance Junction-ambient	Max	100	°C/W

ELECTRICAL CHARACTERISTICS (T_j = 25 °C unless otherwise specified)

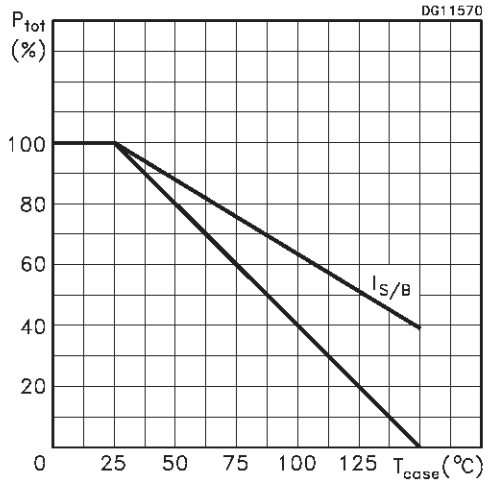
Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cut-off Current (I_E = 0)	V_{CB} = 100 V				10	µA
I_{CEO}	Collector Cut-off Current (I_B = 0)	V_{CE} = 50 V				10	µA
I_{CEX}	Collector Cut-off Current (V_{BE} = -1.5 V)	V_{CE} = 100 V V_{CE} = 100 V	 T_j = 125 °C			10 500	µA µA
I_{EBO}	Emitter Cut-off Current (I_C = 0)	V_{EB} = 5 V				2	mA
$V_{CEO(sus)}$*	Collector-Emitter Sustaining Voltage (I_B = 0)	I_C = 30 mA		100			V
$V_{CE(sat)}$*	Collector-Emitter Saturation Voltage	I_C = 4 A I_C = 8 A	I_B = 16 mA 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 On Voltage	I_C = 4 A	V_{CE} = 4 V			2.8	V
h_{FE}*	DC Current Gain	I_C = 4 A I_C = 8 A	V_{CE} = 4 V V_{CE} = 4 V	1000 100		12000	

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

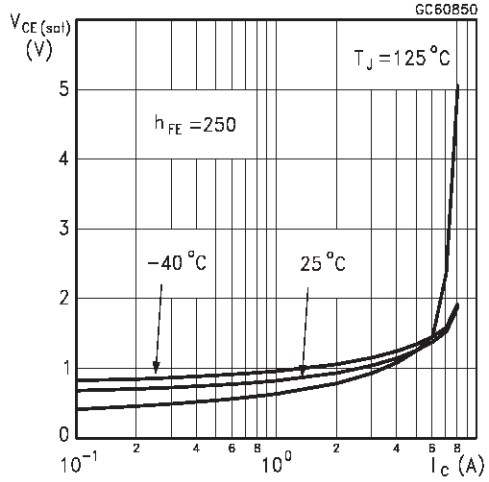
Safe Operating Area



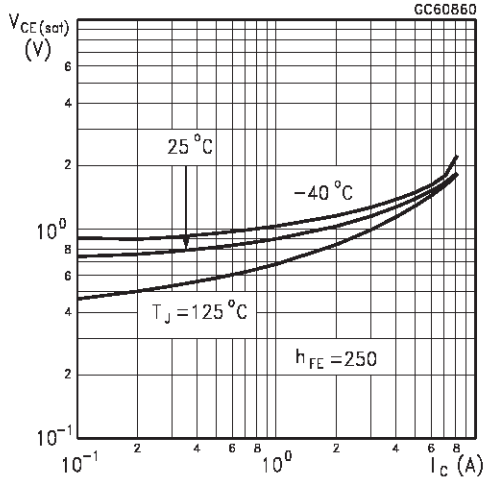
Derating Curve



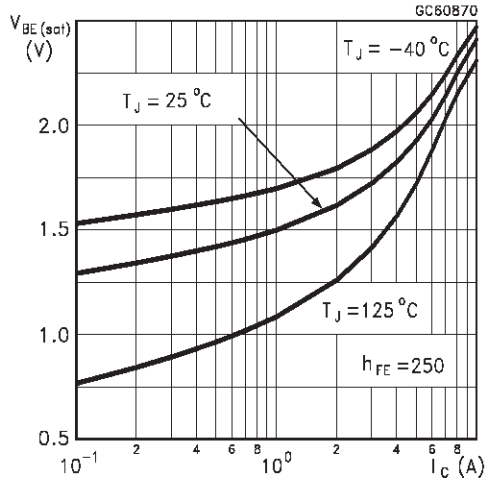
Collector-Emitter Saturation Voltage (NPN type)



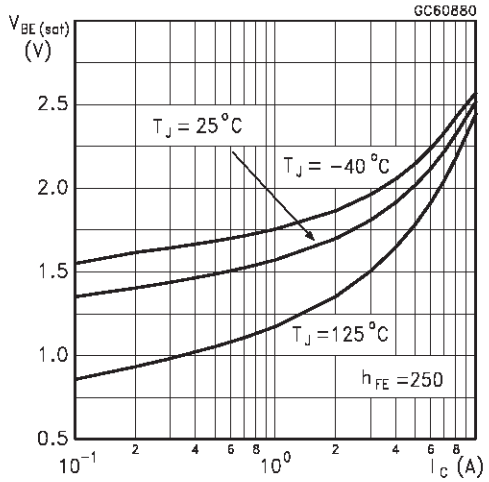
Collector-Emitter Saturation Voltage (PNP type)



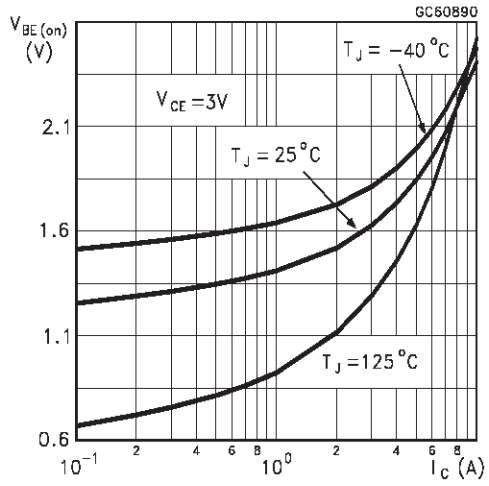
Base-Emitter Saturation Voltage (NPN type)



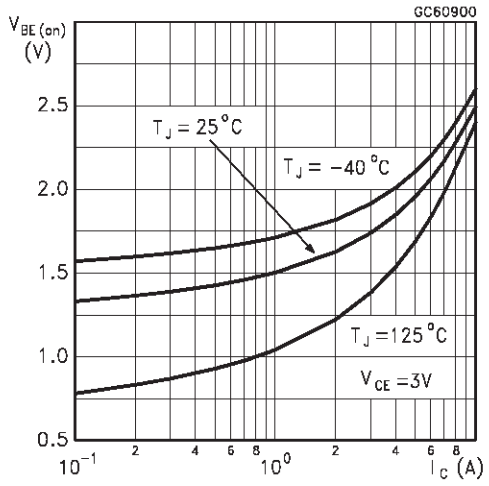
Base-Emitter Saturation Voltage (PNP type)



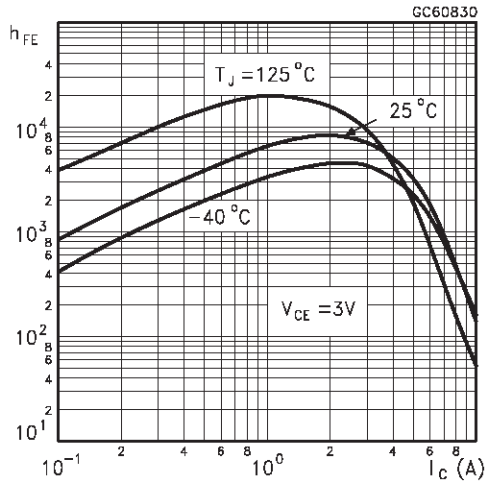
Base-Emitter On Voltage (NPN type)



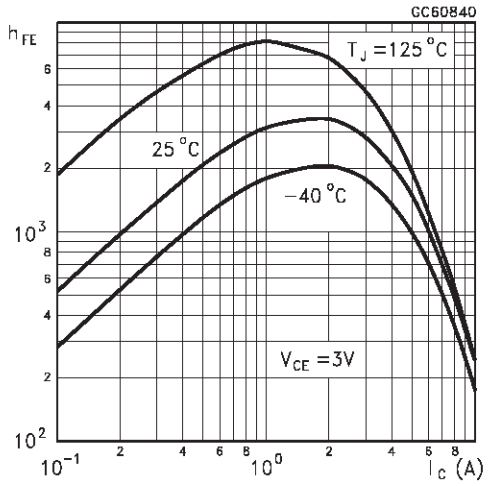
Base-Emitter On Voltage (PNP type)



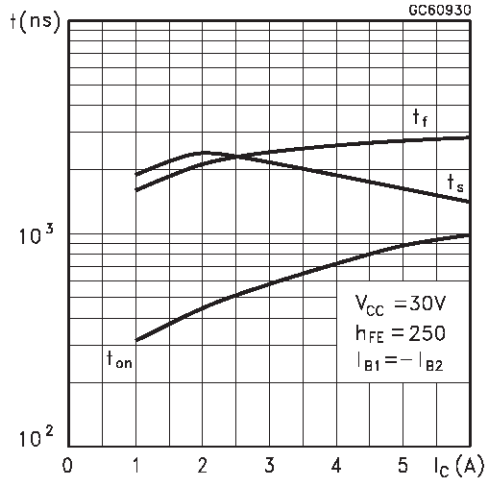
DC Current Gain (NPN type)



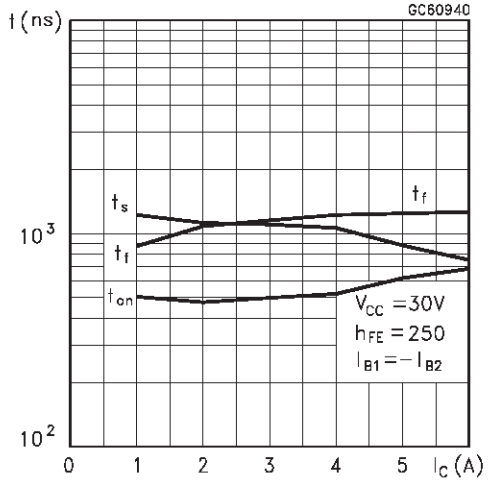
DC Current Gain (PNP type)



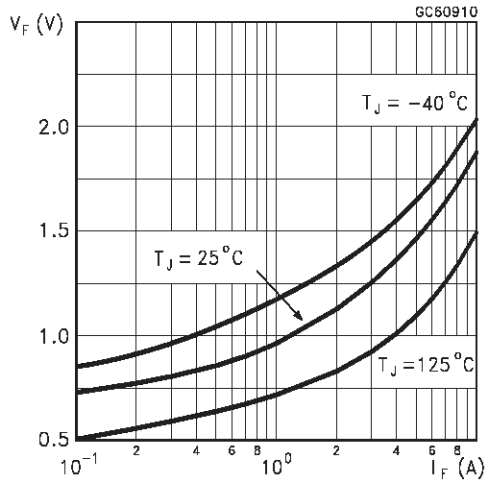
Switching Times Resistive Load (NPN type)



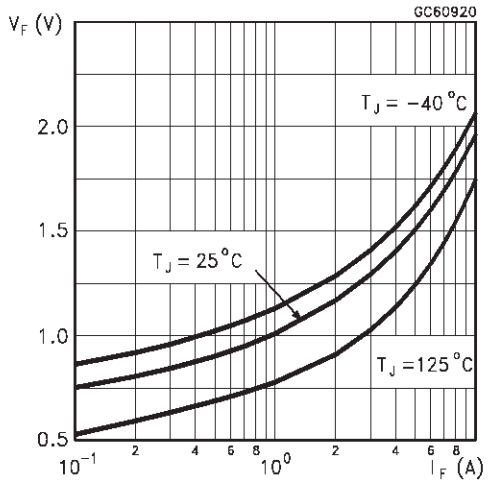
Switching Times Resistive Load (PNP type)



Freewheel Diode Forward Voltage (NPN type)

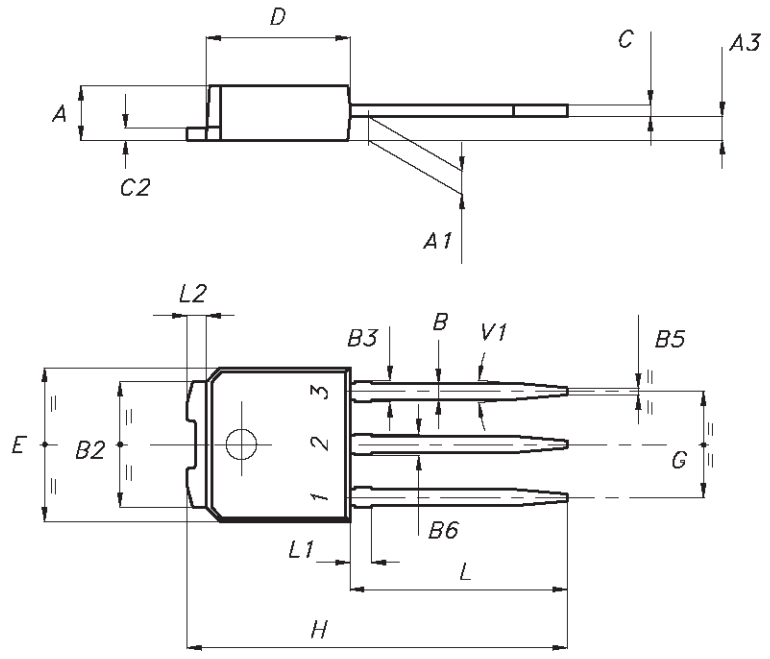


Freewheel Diode Forward Voltage (PNP type)



TO-251 (IPAK) MECHANICAL DATA

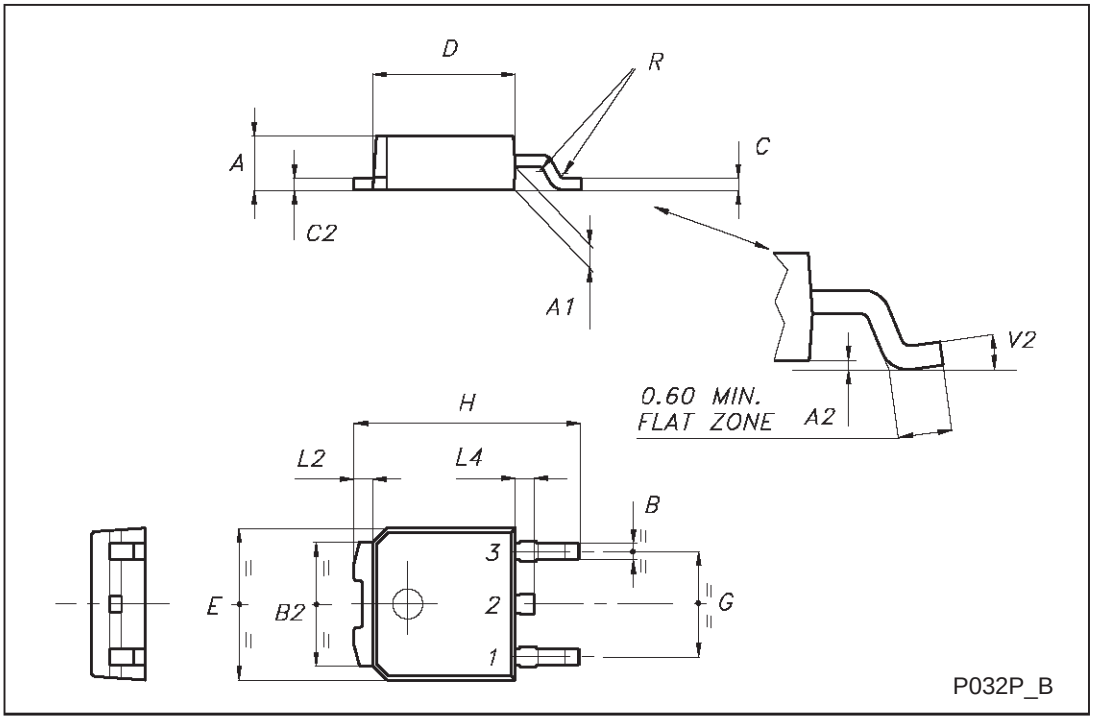
DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	2.20		2.40	0.087		0.094
A1	0.90		1.10	0.035		0.043
A3	0.70		1.30	0.028		0.051
B	0.64		0.90	0.025		0.035
B2	5.20		5.40	0.204		0.213
B3			0.85			0.033
B5		0.30			0.012	
B6			0.95			0.037
C	0.45		0.60	0.018		0.024
C2	0.48		0.60	0.019		0.024
D	6.00		6.20	0.237		0.244
E	6.40		6.60	0.252		0.260
G	4.40		4.60	0.173		0.181
H	15.90		16.30	0.626		0.642
L	9.00		9.40	0.354		0.370
L1	0.80		1.20	0.031		0.047
L2		0.80	1.00		0.031	0.039
V1		10^o			10^o	



P032N_E

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^o		8^o	0^o		0^o



P032P_B