

## SILICON NPN POWER DARLINGTON TRANSISTOR

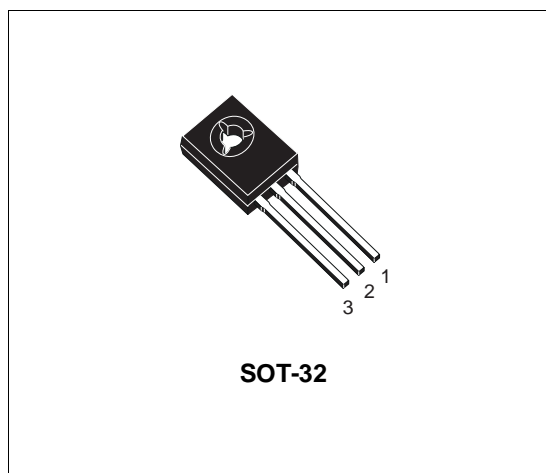
- STMicroelectronics PREFERRED SALESTYPE
- NPN DARLINGTON

### APPLICATIONS

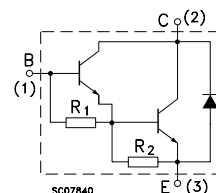
- GENERAL PURPOSE SWITCHING

### DESCRIPTION

The MJE802 is a silicon Epitaxial-Base NPN transistor in monolithic Darlington configuration, mounted in Jedec SOT-32 plastic package. It is intended for use in medium power linear and switching applications.



### INTERNAL SCHEMATIC DIAGRAM



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage ( $I_E = 0$ )	80	V
$V_{CEO}$	Collector-Emitter Voltage ( $I_B = 0$ )	80	V
$V_{EBO}$	Base-Emitter Voltage ( $I_C = 0$ )	5	V
$I_C$	Collector Current	4	A
$I_B$	Base Current	0.1	A
$P_{tot}$	Total Power Dissipation at $T_{case} \leq 25\text{ }^\circ\text{C}$	40	W
$T_{stg}$	Storage Temperature	-65 to 150	$^\circ\text{C}$
$T_j$	Max Operating Junction Temperature	150	$^\circ\text{C}$

# MJE802

## THERMAL DATA

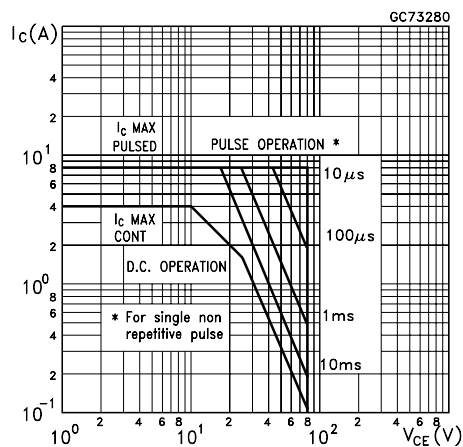
$R_{thj-amb}$	Thermal Resistance Junction-ambient	Max	3.13	$^{\circ}\text{C}/\text{W}$
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## ELECTRICAL CHARACTERISTICS ( $T_{case} = 25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$I_{CBO}$	Collector Cut-off Current ( $I_E = 0$ )	$V_{CB} = \text{rated } V_{CBO}$			100	$\mu\text{A}$
		$V_{CB} = \text{rated } V_{CBO}$ $T_{case} = 100^{\circ}\text{C}$			500	$\mu\text{A}$
$I_{CEO}$	Collector Cut-off Current ( $I_B = 0$ )	$V_{CE} = \text{rated } V_{CEO}$			100	$\mu\text{A}$
$I_{EBO}$	Emitter Cut-off Current ( $I_C = 0$ )	$V_{EB} = 5\text{ V}$			2	mA
$V_{CEO(sus)}^*$	Collector-Emitter Sustaining Voltage ( $I_B = 0$ )	$I_C = 50\text{ mA}$	80			V
$V_{CE(sat)}^*$	Collector-Emitter Saturation Voltage	$I_C = 4\text{ A}$			3	V
		$I_C = 1.5\text{ A}$	$I_B = 40\text{ mA}$ $I_B = 30\text{ mA}$		2.5	V
$V_{BE}^*$	Base-Emitter Voltage	$I_C = 4\text{ A}$	$V_{CE} = 3\text{ V}$		3	V
		$I_C = 1.5\text{ A}$	$V_{CE} = 3\text{ V}$		2.5	V
$h_{FE}^*$	DC Current Gain	$I_C = 4\text{ A}$	$V_{CE} = 3\text{ V}$	100		
		$I_C = 1.5\text{ A}$	$V_{CE} = 3\text{ V}$	750		
$h_{fe}$	Small Signal Current Gain	$I_C = 1.5\text{ A}$ $f = 1\text{ MHz}$	1			

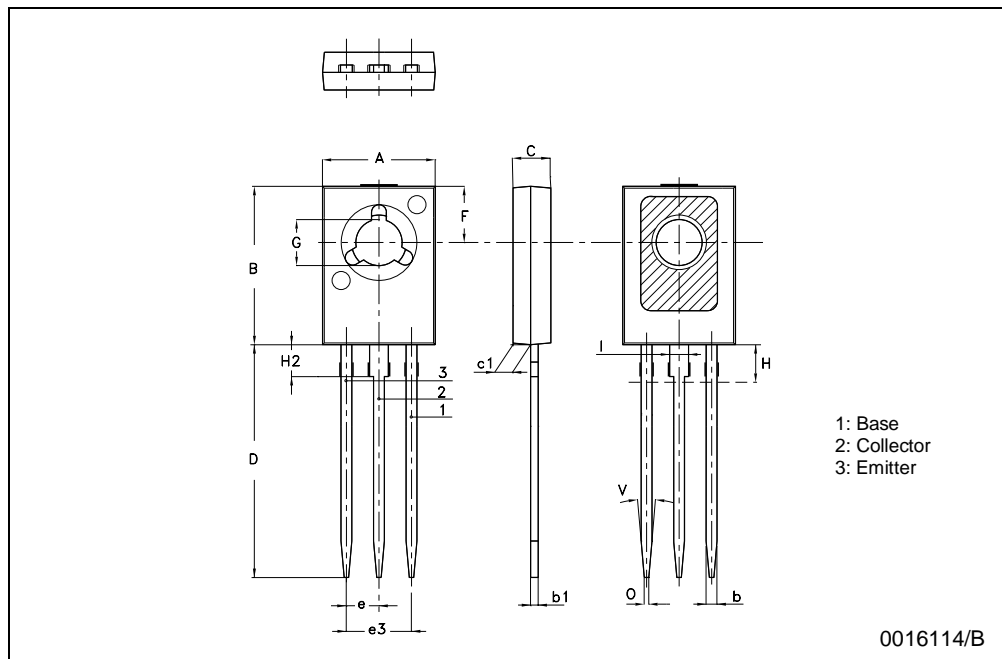
\* Pulsed: Pulse duration = 300 $\mu\text{s}$ , duty cycle  $\leq 1.5\%$

## Safe Operating Area



**SOT-32 (TO-126) MECHANICAL DATA**

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	7.4		7.8	0.291		0.307
B	10.5		10.8	0.413		0.425
b	0.7		0.9	0.028		0.035
b1	0.40		0.65	0.015		0.025
C	2.4		2.7	0.094		0.106
c1	1.0		1.3	0.039		0.051
D	15.4		16.0	0.606		0.630
e		2.2			0.087	
e3		4.4			0.173	
F		3.8			0.150	
G	3		3.2	0.118		0.126
H			2.54			0.100
H2		2.15			0.084	
I		1.27			0.05	
O		0.3			0.011	
V		10°			10°	



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