

# SILICON NPN POWER DARLINGTON TRANSISTOR

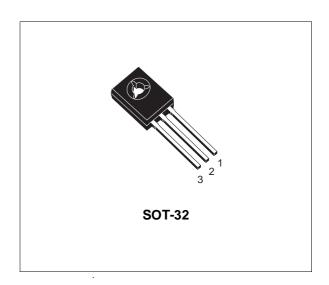
- STMicroelectronics PREFERRED SALESTYPE
- NPN DARLINGTON

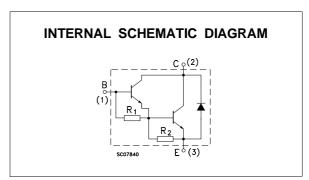
#### **APPLICATIONS**

■ 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.





#### **ABSOLUTE MAXIMUM RATINGS**

Symbol	Parameter	Value	Unit
V <sub>CBO</sub>	Collector-Base Voltage (I <sub>E</sub> = 0)	80	V
V <sub>CEO</sub>	Collector-Emitter Voltage (I <sub>B</sub> = 0)	80	V
V <sub>EBO</sub>	Base-Emitter Voltage (I <sub>C</sub> = 0)	5	V
Ic	Collector Current	4	Α
$I_B$	Base Current	0.1	А
P <sub>tot</sub>	Total Power Dissipation at T <sub>case</sub> ≤ 25 °C	40	W
$T_{stg}$	Storage Temperature	-65 to 150	°C
Tj	Max Operating Junction Temperature	150	°C

September 2003 1/4

### THERMAL DATA

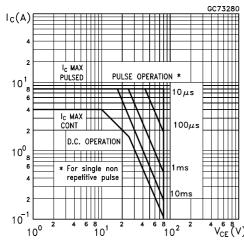
R <sub>thj-amb</sub>	Thermal Resistance Junction-ambient	Max	3.13	°C/W	
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# **ELECTRICAL CHARACTERISTICS** ( $T_{case} = 25$ °C unless otherwise specified)

Symbol	Parameter	Test Condi	tions	Min.	Тур.	Max.	Unit
I <sub>CBO</sub>	Collector Cut-off Current (I <sub>E</sub> = 0)	$V_{CB}$ = rated $V_{CBO}$ $V_{CB}$ = rated $V_{CBO}$ $T_{case}$ = 100 °C				100 500	μA μA
I <sub>CEO</sub>	Collector Cut-off Current (I <sub>B</sub> = 0)	V <sub>CE</sub> = rated V <sub>CEO</sub>				100	μΑ
I <sub>EBO</sub>	Emitter Cut-off Current (I <sub>C</sub> = 0)	V <sub>EB</sub> = 5 V				2	mA
V <sub>CEO(sus)</sub> *	Collector-Emitter Sustaining Voltage (I <sub>B</sub> = 0)	I <sub>C</sub> = 50 mA		80			V
$V_{CE(sat)^*}$	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 4 A I <sub>C</sub> = 1.5 A	$I_B = 40 \text{ mA}$ $I_B = 30 \text{ mA}$			3 2.5	V
V <sub>BE</sub> *	Base-Emitter Voltage	I <sub>C</sub> = 4 A I <sub>C</sub> = 1.5 A	V <sub>CE</sub> = 3 V V <sub>CE</sub> = 3 V			3 2.5	V
h <sub>FE</sub> *	DC Current Gain	I <sub>C</sub> = 4 A I <sub>C</sub> = 1.5 A	V <sub>CE</sub> = 3 V V <sub>CE</sub> = 3 V	100 750			
h <sub>fe</sub>	Small Signal Current Gain	I <sub>C</sub> = 1.5 A f = 1 MHz	V <sub>CE</sub> = 3 V	1			

<sup>\*</sup> Pulsed: Pulse duration = 300µs, duty cycle ≤ 1.5%

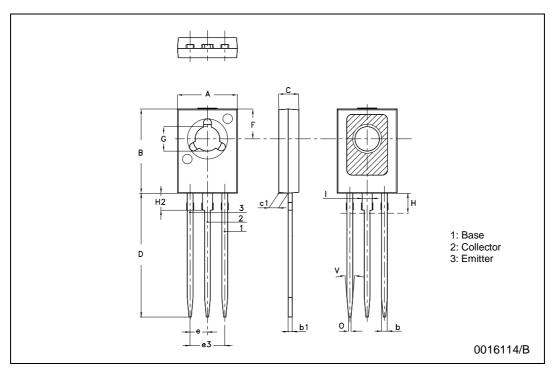
## Safe Operating Area



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

DIM.	mm		inch			
Dilvi.	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
А	7.4		7.8	0.291		0.307
В	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
С	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
е		2.2			0.087	
e3		4.4			0.173	
F		3.8			0.150	
G	3		3.2	0.118		0.126
Н			2.54			0.100
H2		2.15			0.084	
1		1.27			0.05	
0		0.3			0.011	
V		10°			10°	



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