

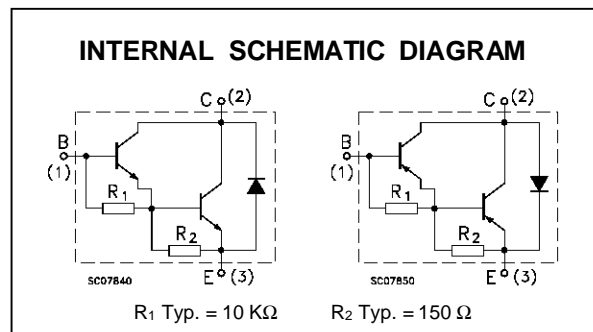
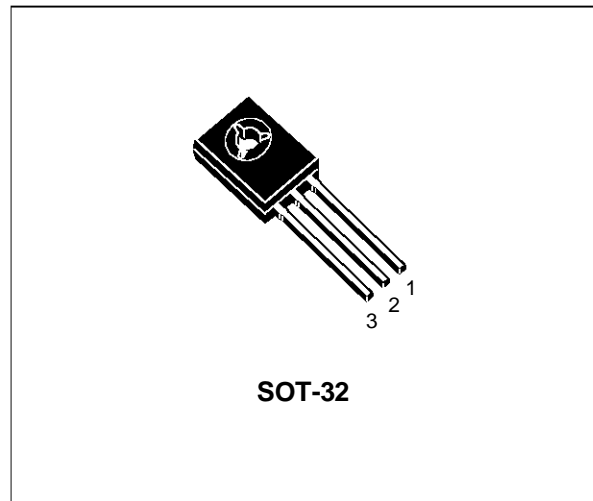
## COMPLEMENTARY SILICON POWER DARLINGTON TRANSISTORS

- 2N6036 AND 2N6039 ARE SGS-THOMSON PREFERRED SALESTYPES

### DESCRIPTION

The 2N6038 and 2N6039 are silicon epitaxial-base NPN power transistors in monolithic Darlington configuration mounted in Jedec SOT-32 plastic package.

The complementary PNP types are 2N6035 and 2N6036 respectively.



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value		Unit	
		PNP	2N6035		2N6036
		NPN	2N6038		2N6039
$V_{CBO}$	Collector-Base Voltage ( $I_E = 0$ )		60	80	V
$V_{CEO}$	Collector-Emitter Voltage ( $I_B = 0$ )		60	80	V
$V_{EBO}$	Emitter-Base Voltage ( $I_C = 0$ )		5		V
$I_C$	Collector Current		4		A
$I_{CM}$	Collector Peak Current		8		A
$I_B$	Base Current		0.1		A
$P_{tot}$	Total Dissipation at $T_c \leq 25^\circ C$		40		W
$T_{stg}$	Storage Temperature		-65 to 150		$^\circ C$
$T_j$	Max. Operating Junction Temperature		150		$^\circ C$

For PNP types voltage and current values are negative.

## 2N6035/2N6036/2N6038/2N6039

### THERMAL DATA

R <sub>thj-case</sub>	Thermal Resistance Junction-case	Max	3.12	°C/W
R <sub>thj-amb</sub>	Thermal Resistance Junction-ambient	Max	83.3	°C/W

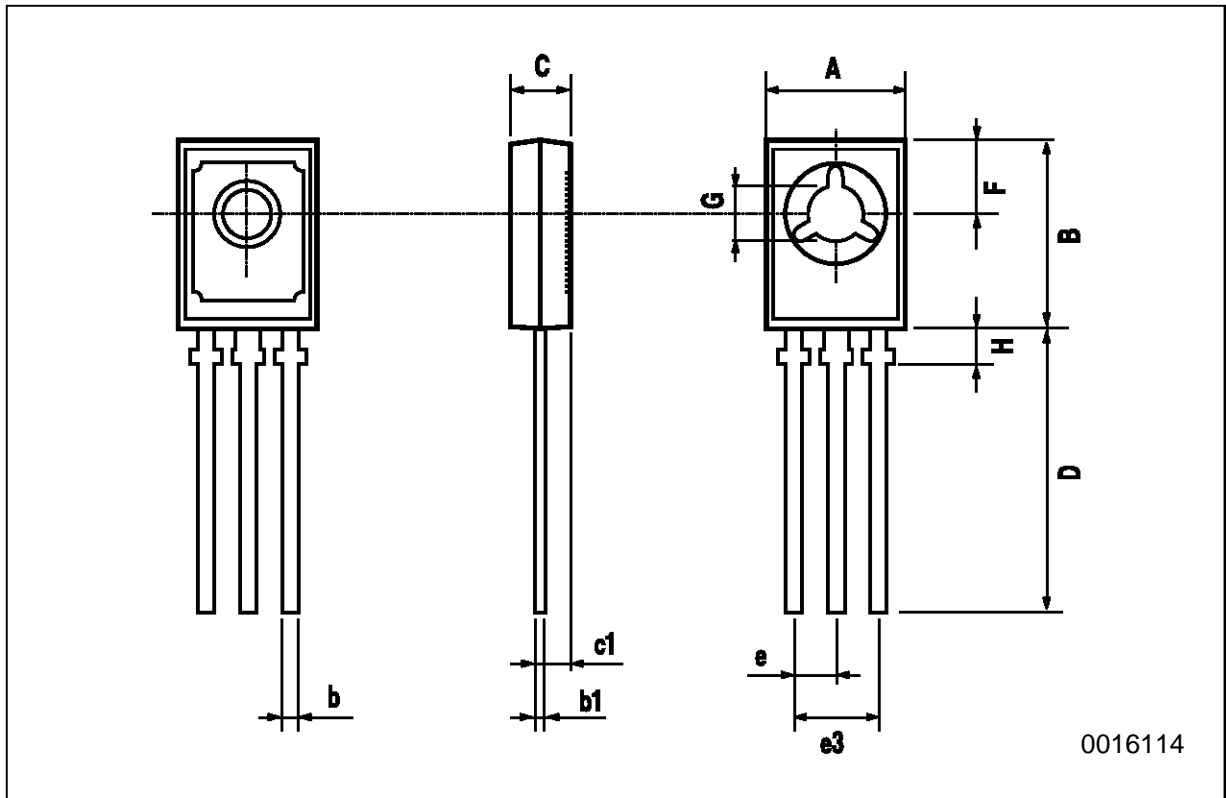
### ELECTRICAL CHARACTERISTICS (T<sub>case</sub> = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I <sub>CEX</sub>	Collector Cut-off Current (V <sub>BE</sub> = -1.5V)	V <sub>CE</sub> = rated V <sub>CEO</sub> V <sub>CE</sub> = rated V <sub>CEO</sub> T <sub>c</sub> = 125 °C			0.1 0.5	mA mA
I <sub>CBO</sub>	Collector Cut-off Current (I <sub>E</sub> = 0)	V <sub>CE</sub> = rated V <sub>CBO</sub>			0.1	mA
I <sub>CEO</sub>	Collector Cut-off Current (I <sub>B</sub> = 0)	V <sub>CE</sub> = rated V <sub>CEO</sub>			0.1	mA
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>C</sub> = 100 mA for <b>2N6035/2N6038</b> for <b>2N6036/2N6039</b>	60 80			V V
V <sub>CE(sat)</sub> *	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 2 A I <sub>B</sub> = 8 mA I <sub>C</sub> = 4 A I <sub>B</sub> = 40 mA			2 3	V V
V <sub>BE(sat)</sub> *	Base-Emitter Saturation Voltage	I <sub>C</sub> = 4 A I <sub>B</sub> = 40 mA			4	V
V <sub>BE</sub> *	Base-Emitter Voltage	I <sub>C</sub> = 2 A V <sub>CE</sub> = 3 V			2.8	V
h <sub>FE</sub> *	DC Current Gain	I <sub>C</sub> = 0.5 A V <sub>CE</sub> = 3 V I <sub>C</sub> = 2 A V <sub>CE</sub> = 3 V I <sub>C</sub> = 4 A V <sub>CE</sub> = 3 V	500 750 100		15000	
h <sub>fe</sub>	Small Signal Current Gain	I <sub>C</sub> = 0.75 A V <sub>CE</sub> = 10 V f = 1KHz	25			
C <sub>CBO</sub>	Collector Base Capacitance	I <sub>E</sub> = 0 V <sub>CB</sub> = 10 V f = 1MHz for <b>NPN types</b> for <b>PNP types</b>			100 200	pF pF

\* Pulsed: Pulse duration = 300 μs, duty cycle 1.5%

**SOT-32 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		0.445
b	0.7		0.9	0.028		0.035
b1	0.49		0.75	0.019		0.030
C	2.4		2.7	0.04		0.106
c1		1.2			0.047	
D		15.7			0.618	
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



Information furnished is believed to be accurate and reliable. However, SGS-THOMSON Microelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of SGS-THOMSON Microelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. SGS-THOMSON Microelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of SGS-THOMSON Microelectronics.

© 1995 SGS-THOMSON Microelectronics - All Rights Reserved

SGS-THOMSON Microelectronics GROUP OF COMPANIES

Australia - Brazil - France - Germany - Hong Kong - Italy - Japan - Korea - Malaysia - Malta - Morocco - The Netherlands -  
Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A