

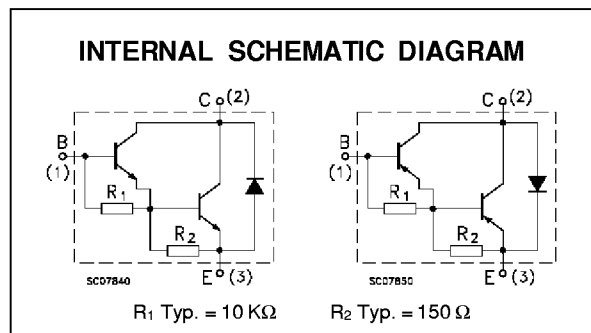
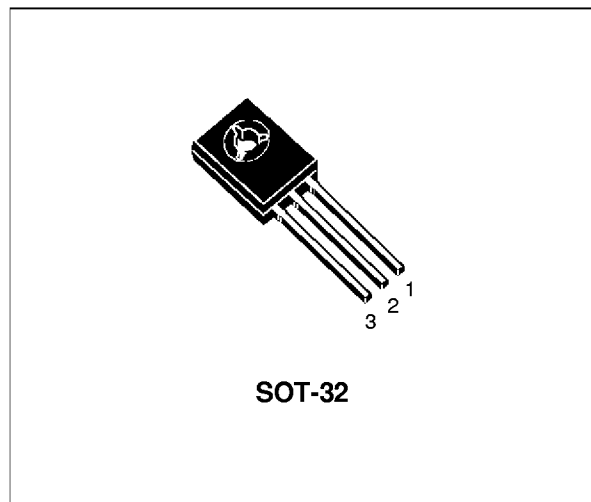
## COMPLEMENTARY SILICON POWER DARLINGTON TRANSISTORS

- 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 <sub>CBO</sub>	Collector-Base Voltage (I <sub>E</sub> = 0)		60	80	V
V <sub>CEO</sub>	Collector-Emitter Voltage (I <sub>B</sub> = 0)		60	80	V
V <sub>EBO</sub>	Emitter-Base Voltage (I <sub>C</sub> = 0)		5		V
I <sub>C</sub>	Collector Current		4		A
I <sub>CM</sub>	Collector Peak Current		8		A
I <sub>B</sub>	Base Current		0.1		A
P <sub>tot</sub>	Total Dissipation at T <sub>c</sub> ≤ 25 °C		40		W
T <sub>stg</sub>	Storage Temperature		-65 to 150		°C
T <sub>j</sub>	Max. Operating Junction Temperature		150		°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

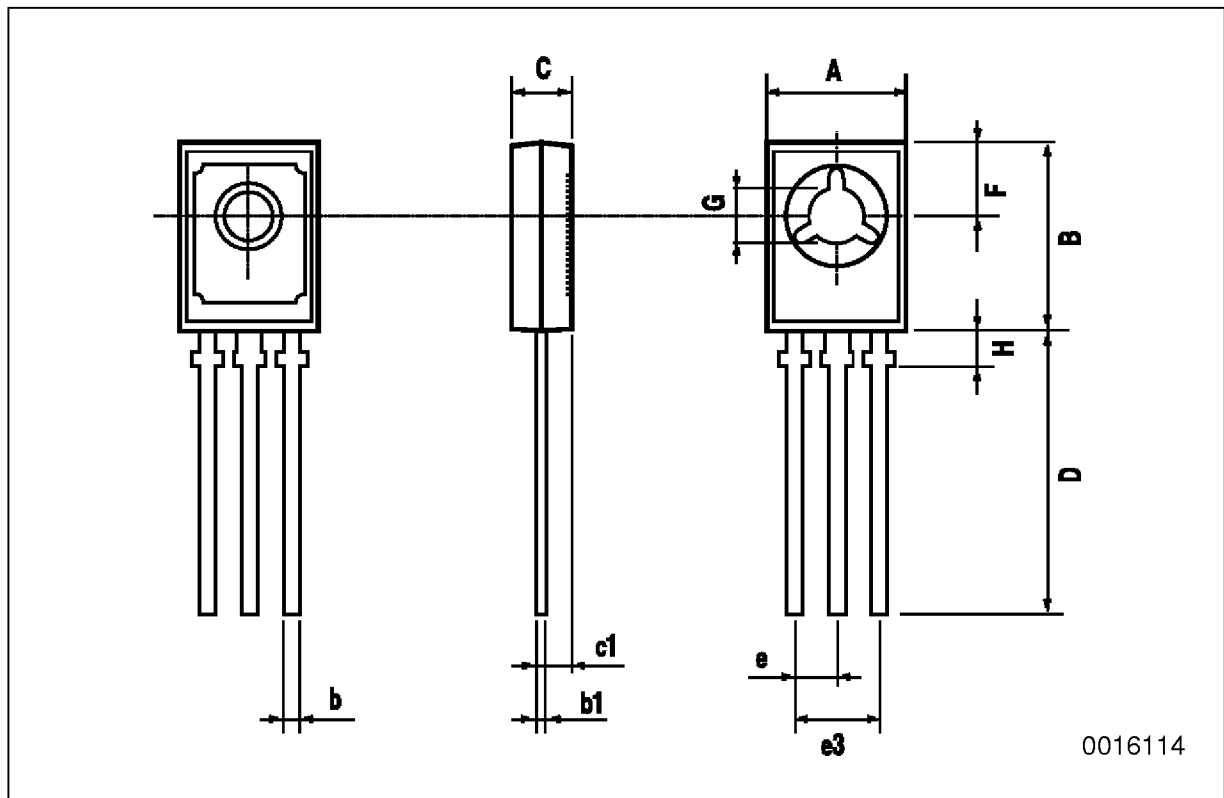
### ELECTRICAL CHARACTERISTICS (T<sub>case</sub> = 25 °C unless otherwise specified)

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>CB0</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



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