

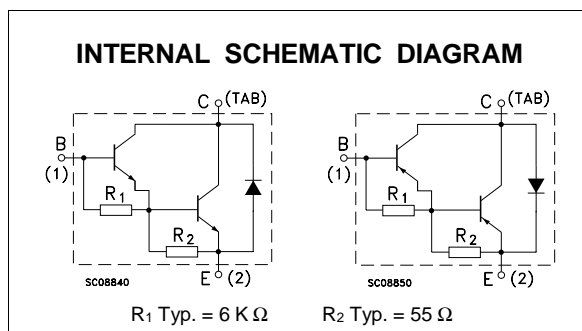
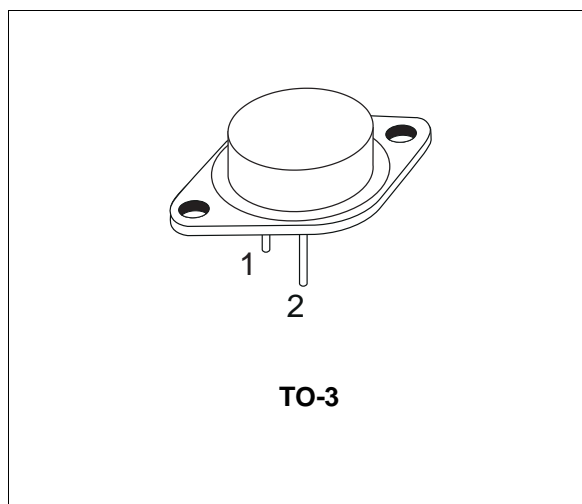
## COMPLEMENTARY SILICON POWER DARLINGTON TRANSISTORS

### ■ SGS-THOMSON PREFERRED SALESTYPES

#### DESCRIPTION

The BDX87C is a silicon epitaxial-base NPN power transistors in monolithic Darlington configuration and are mounted in Jedec TO-3 metal case. They are intended for use in power linear and switching applications.

The complementary PNP types is the BDX88C.



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter		Value	Unit
		NPN	BDX87C	
		PNP	BDX88C	
$V_{CBO}$	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		12	A
$I_{CM}$	Collector Peak Current (repetitive)		18	A
$I_B$	Base Current		0.2	A
$P_{tot}$	Total Dissipation at $T_c \leq 25^\circ\text{C}$		120	W
$T_{stg}$	Storage Temperature		-65 to 200	$^\circ\text{C}$
$T_j$	Max. Operating Junction Temperature		200	$^\circ\text{C}$

## BDX87C-BDX88C

### THERMAL DATA

R <sub>thj-case</sub>	Thermal Resistance Junction-case	Max	1.45	°C/W
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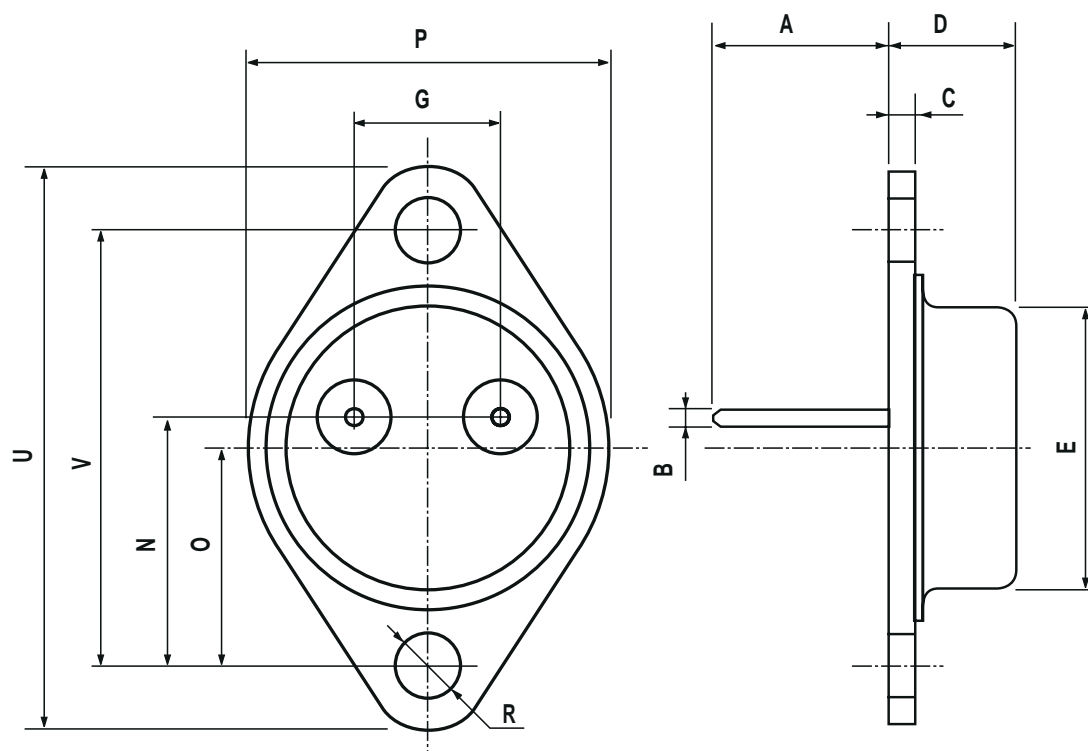
### ELECTRICAL CHARACTERISTICS (T<sub>case</sub> = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I <sub>CBO</sub>	Collector Cut-off Current (I <sub>E</sub> = 0)	V <sub>CB</sub> = 100 V V <sub>CB</sub> = 100 V      T <sub>case</sub> = 150 °C			0.5 5	mA mA
I <sub>CEO</sub>	Collector Cut-off Current (I <sub>B</sub> = 0)	V <sub>CB</sub> = 50 V			1	mA
I <sub>EBO</sub>	Emitter Cut-off Current (I <sub>C</sub> = 0)	V <sub>EB</sub> = 5 V			1	mA
V <sub>CEO(sus)</sub> *	Collector-Emitter Sustaining Voltage (I <sub>B</sub> = 0)	I <sub>C</sub> = 100 mA	100			V
V <sub>CE(sat)</sub> *	Collector-emitter Saturation Voltage	I <sub>C</sub> = 6 A      I <sub>B</sub> = 24 mA I <sub>C</sub> = 12 A      I <sub>B</sub> = 120 mA			2 3	V V
V <sub>BE(sat)</sub> *	Base-emitter Saturation Voltage	I <sub>C</sub> = 12 A      I <sub>B</sub> = 120 mA			4	V
V <sub>BE</sub> *	Base-emitter Voltage	I <sub>C</sub> = 6 A      V <sub>CE</sub> = 3 V			2.8	V
h <sub>FE</sub> *	DC Current Gain	I <sub>C</sub> = 5 A      V <sub>CE</sub> = 3 V I <sub>C</sub> = 6 A      V <sub>CE</sub> = 3 V I <sub>C</sub> = 12 A      V <sub>CE</sub> = 3 V	1000 750 100		18000	
V <sub>F</sub> *	Parallel-diode Forward Voltage	I <sub>F</sub> = 3 A I <sub>F</sub> = 8 A		2.5	1.8	V V
h <sub>fe</sub> *	Small Signal Current Gain	I <sub>C</sub> = 5 A      V <sub>CE</sub> = 3 V f = 1MHz		25		

\* Pulsed: Pulse duration = 300 μs, duty cycle 1.5 %  
For PNP types voltage and current values are negative.

## TO-3 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	11.00		13.10	0.433		0.516
B	0.97		1.15	0.038		0.045
C	1.50		1.65	0.059		0.065
D	8.32		8.92	0.327		0.351
E	19.00		20.00	0.748		0.787
G	10.70		11.10	0.421		0.437
N	16.50		17.20	0.649		0.677
P	25.00		26.00	0.984		1.023
R	4.00		4.09	0.157		0.161
U	38.50		39.30	1.515		1.547
V	30.00		30.30	1.187		1.193



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