

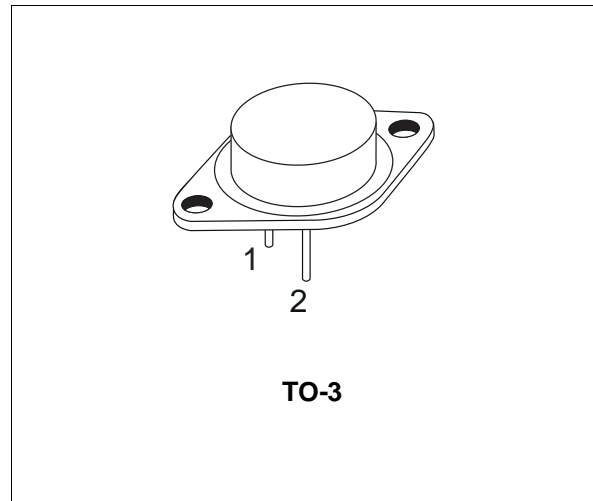
COMPLEMENTARY SILICON POWER DARLINGTON TRANSISTORS

■ SGS-THOMSON PREFERRED SALESTYPES

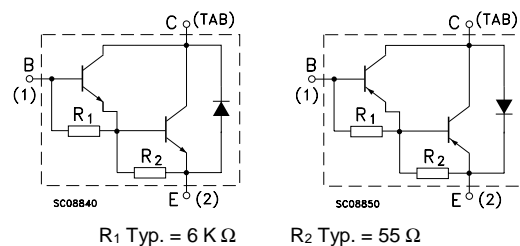
DESCRIPTION

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.



INTERNAL SCHEMATIC DIAGRAM



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 $T_c \leq 25$ °C		120	W
T_{stg}	Storage Temperature		-65 to 200	°C
T_j	Max. Operating Junction Temperature		200	°C

BDX87C-BDX88C

THERMAL DATA

$R_{thj-case}$	Thermal Resistance Junction-case	Max	1.45	$^{\circ}\text{C}/\text{W}$
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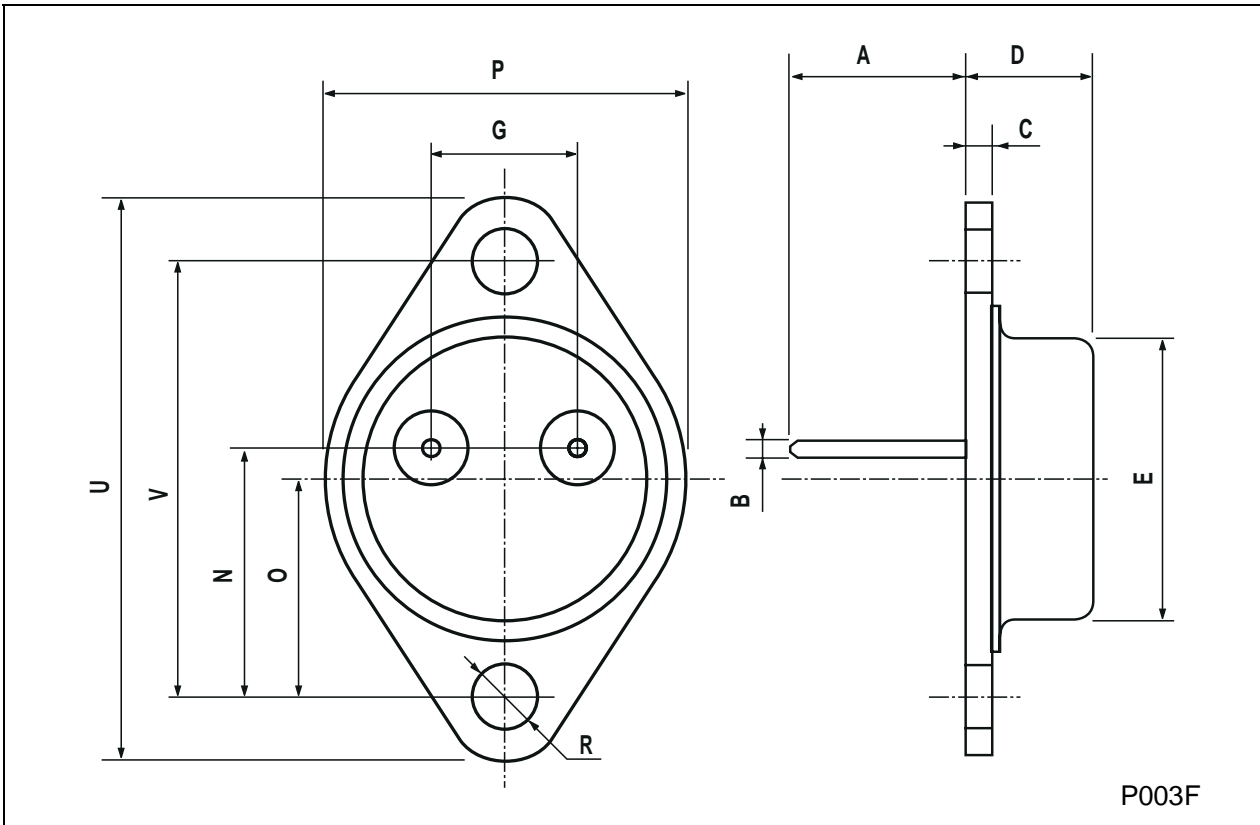
ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cut-off Current ($I_E = 0$)	$V_{CB} = 100\text{ V}$ $V_{CB} = 100\text{ V}$ $T_{case} = 150^{\circ}\text{C}$			0.5 5	mA mA
I_{CEO}	Collector Cut-off Current ($I_B = 0$)	$V_{CB} = 50\text{ V}$			1	mA
I_{EBO}	Emitter Cut-off Current ($I_C = 0$)	$V_{EB} = 5\text{ V}$			1	mA
$V_{CEO(sus)}^*$	Collector-Emitter Sustaining Voltage ($I_B = 0$)	$I_C = 100\text{ mA}$	100			V
$V_{CE(sat)}^*$	Collector-emitter Saturation Voltage	$I_C = 6\text{ A}$ $I_B = 24\text{ mA}$ $I_C = 12\text{ A}$ $I_B = 120\text{ mA}$			2 3	V V
$V_{BE(sat)}^*$	Base-emitter Saturation Voltage	$I_C = 12\text{ A}$ $I_B = 120\text{ mA}$			4	V
V_{BE}^*	Base-emitter Voltage	$I_C = 6\text{ A}$ $V_{CE} = 3\text{ V}$			2.8	V
h_{FE}^*	DC Current Gain	$I_C = 5\text{ A}$ $V_{CE} = 3\text{ V}$ $I_C = 6\text{ A}$ $V_{CE} = 3\text{ V}$ $I_C = 12\text{ A}$ $V_{CE} = 3\text{ V}$	1000 750 100		18000	
V_F^*	Parallel-diode Forward Voltage	$I_F = 3\text{ A}$ $I_F = 8\text{ A}$		2.5	1.8	V V
h_{fe}^*	Small Signal Current Gain	$I_C = 5\text{ A}$ $V_{CE} = 3\text{ V}$ $f = 1\text{ MHz}$		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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