SGS-THOMSON MICROELECTRONICS

BDX87C
BDX88C

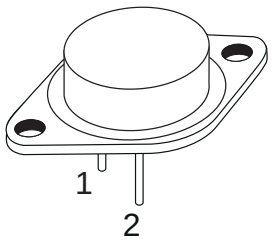
COMPLEMENTARY SILICON POWER DARLINGTON TRANSISTORS

- SGS-THOMSON PREFERRED SALESTYPES

DESCRIPTION

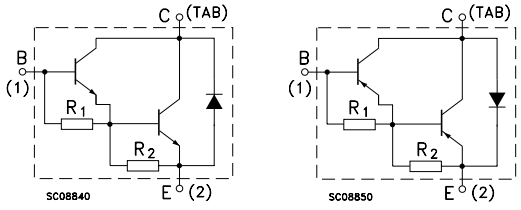
The BDX87C is a silicon epitaxial-base NPN power transistors in monolithic Darlington configuration and are mounted in Jedec TO-3 metal case. They are intented for use in power linear and switching applications.

The complementary PNP types is the BDX88C.



TO-3

INTERNAL SCHEMATIC DIAGRAM



R_1 Typ. = 6 K Ω R_2 Typ. = 55 Ω

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

THERMAL DATA

$R_{thj\text{-}case}$	Thermal Resistance Junction-case	Max	1.45	$^oC/W$

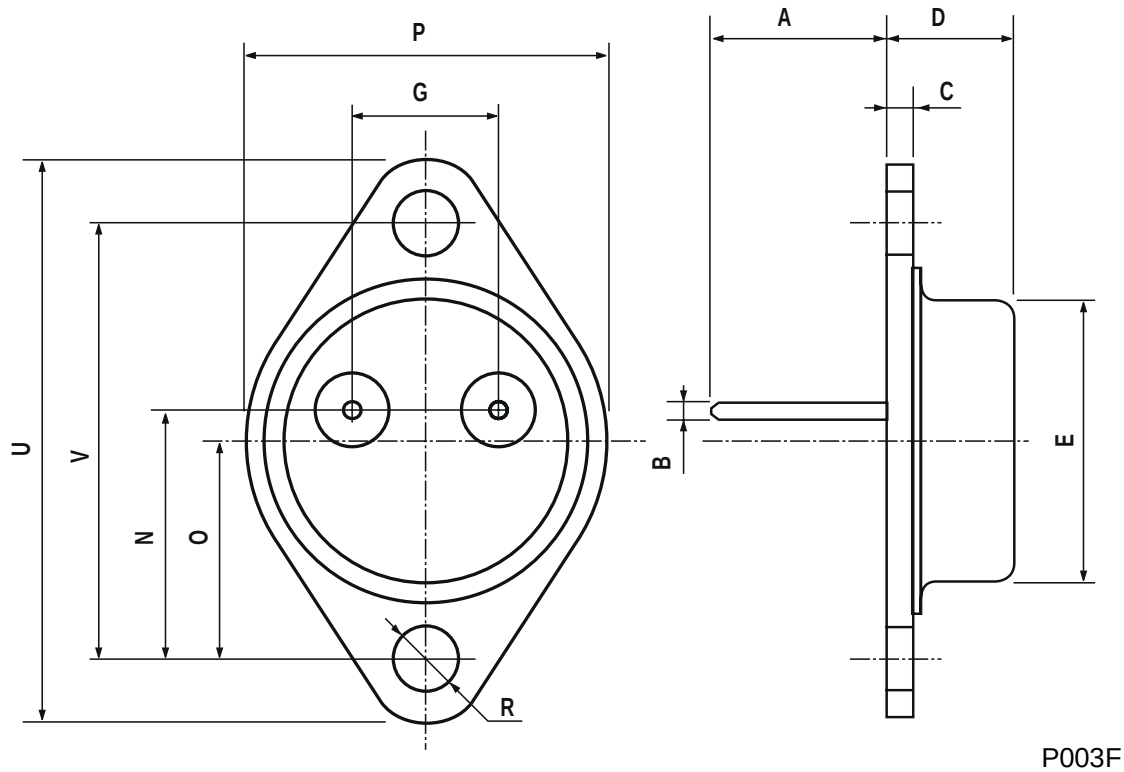
ELECTRICAL CHARACTERISTICS (T_{case} = 25 ^oC unless otherwise specified)

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



P003F