SGS-THOMSON MICROELECTRONICS

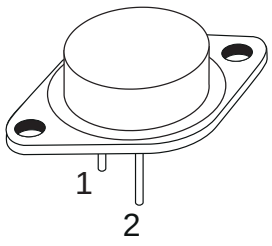
BDY90

HIGH CURRENT NPN SILICON TRANSISTOR

- SGS-THOMSON PREFERRED SALESTYPE

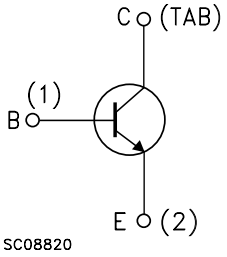
APPLICATIONS
LINEAR AND SWITCHING INDUSTRIAL EQUIPMENT

DESCRIPTION
The BDY90 is a silicon epitaxial planar NPN power transistors in Jedec TO-3 metal case. They are intented for use in switching and linear applications in military and industrial equipment.



TO-3

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

		Value	
V_{CBO}	Collector-base Voltage (I_E = 0)	120	V
V_{CEV}	Collector-emitter Voltage (V_{BE} = -1.5V)	120	V
V_{CEO}	Collector-emitter Voltage (I_B = 0)	100	V
V_{EBO}	Emitter-base Voltage (I_C = 0)	6	V
I_C	Collector Current	10	A
I_{CM}	Collector Peak Current (repetitive)	15	A
I_B	Base Current	2	A
P_{tot}	Total Dissipation at $T_c \leq 25\ ^oC$	60	W
T_{stg}	Storage Temperature	-65 to 175	^oC
T_j	Max. Operating Junction Temperature	175	^oC

THERMAL DATA

$R_{thj\text{-}case}$	Thermal Resistance Junction-case	Max	2.5	$^oC/W$

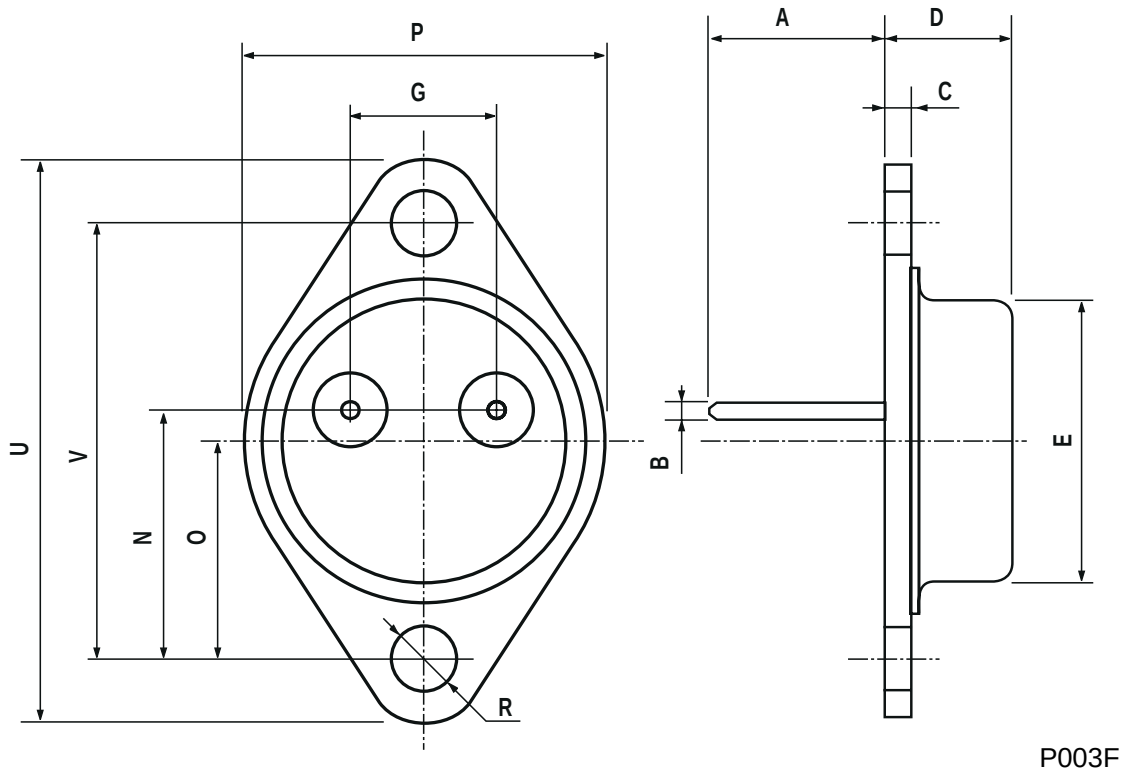
ELECTRICAL CHARACTERISTICS (T_{case} = 25 ^oC unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cut-off Current (I_E = 0)	$V_{CE} = V_{CBO}$			1	mA
I_{CEV}	Collector Cut-off Current (V_{BE} = -1.5V)	$V_{CE} = V_{CEV}$ T_{case} = 150 ^oC $V_{CE} = V_{CEV}$			1 3	mA mA
I_{EBO}	Emitter Cut-off Current (I_C = 0)	V_{EB} = 6 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 = 5 A I_B = 0.5 A I_C = 10 A I_B = 1 A			0.5 1.5	V V
$V_{BE(sat)}$*	Base-emitter Saturation Voltage	I_C = 5 A I_B = 0.5 A I_C = 10 A I_B = 1 A			1.2 1.5	V V
h_{FE}*	DC Current Gain	I_C = 1 A V_{CE} = 2 V I_C = 5 A V_{CE} = 5 V I_C = 10 A V_{CE} = 5 V	30 30 20		 120	
f_t	Transition-Frequency	I_C = 0.5 A V_{CE} = 5 V f = 5 MHz		70		MHz
t_{on}	Turn-on Time	I_C = 5 A I_{B1} = 0.5 A V_{CC} = 30 V			0.35	µs
t_s	Storage Time	I_C = 5 A $I_{B1} = -I_{B2}$ = 0.5 A V_{CC} = 30 V			1.3	µs
t_f	Fall Time				0.2	µs

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

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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