

HIGH CURRENT NPN SILICON TRANSISTOR

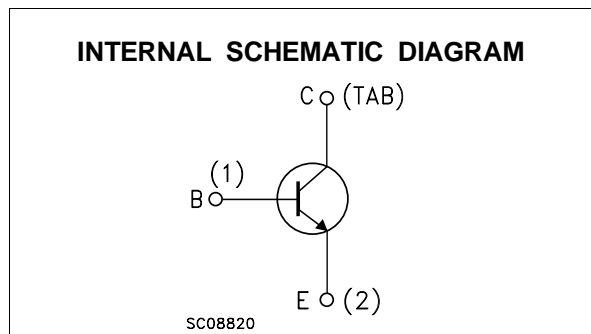
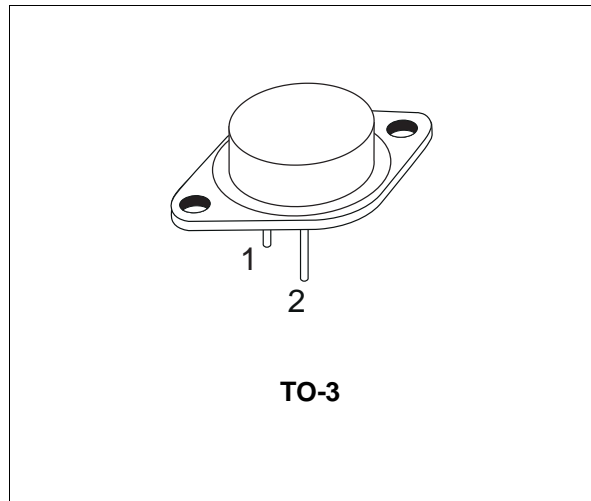
■ SGS-THOMSON PREFERRED SALESTYPE

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 intended for use in switching and linear applications in military and industrial equipment.



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 $T_c \leq 25^\circ C$	60	W
T_{stg}	Storage Temperature	-65 to 175	$^\circ C$
T_j	Max. Operating Junction Temperature	175	$^\circ C$

BDY90

THERMAL DATA

$R_{thj-case}$	Thermal Resistance Junction-case	Max	2.5	°C/W
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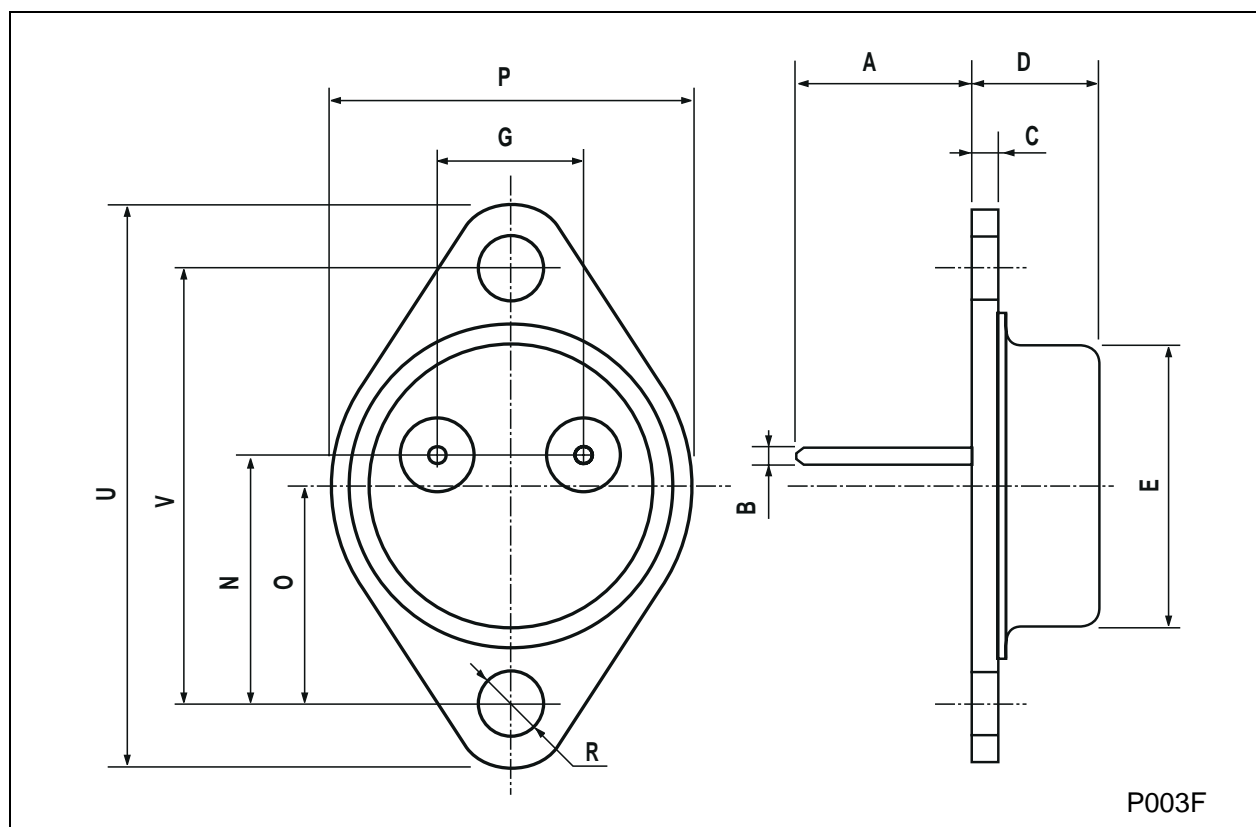
ELECTRICAL CHARACTERISTICS ($T_{case} = 25\text{ °C}$ unless otherwise specified)

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 ($V_{BE} = -1.5V$)	$V_{CE} = V_{CEV}$ $T_{case} = 150\text{ °C}$ $V_{CE} = V_{CEV}$			1 3	mA mA
I_{EBO}	Emitter Cut-off Current ($I_C = 0$)	$V_{EB} = 6\text{ V}$			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	$I_C = 5\text{ A}$ $I_C = 10\text{ A}$	$I_B = 0.5\text{ A}$ $I_B = 1\text{ A}$		0.5 1.5	V V
$V_{BE(sat)}^*$	Base-emitter Saturation Voltage	$I_C = 5\text{ A}$ $I_C = 10\text{ A}$	$I_B = 0.5\text{ A}$ $I_B = 1\text{ A}$		1.2 1.5	V V
h_{FE}^*	DC Current Gain	$I_C = 1\text{ A}$ $I_C = 5\text{ A}$ $I_C = 10\text{ A}$	$V_{CE} = 2\text{ V}$ $V_{CE} = 5\text{ V}$ $V_{CE} = 5\text{ V}$	30 30 20	120	
f_t	Transition-Frequency	$I_C = 0.5\text{ A}$ $f = 5\text{ MHz}$		70		MHz
t_{on}	Turn-on Time	$I_C = 5\text{ A}$ $V_{CC} = 30\text{ V}$	$I_{B1} = 0.5\text{ A}$		0.35	μs
t_s	Storage Time	$I_C = 5\text{ A}$ $V_{CC} = 30\text{ V}$	$I_{B1} = -I_{B2} = 0.5\text{ A}$		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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