

**HIGH CURRENT NPN SILICON TRANSISTOR**

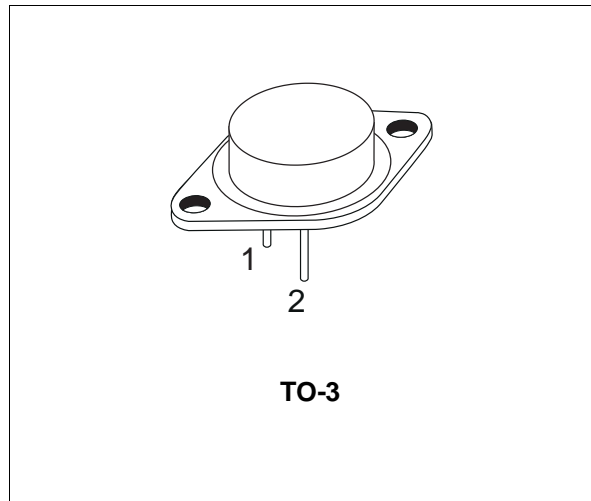
■ SGS-THOMSON PREFERRED SALESTYPE

**APPLICATIONS**

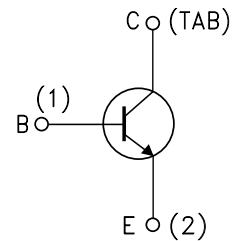
LINEAR AND SWITCHING INDUSTRIAL EQUIPMENT

**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.



**INTERNAL SCHEMATIC DIAGRAM**



**ABSOLUTE MAXIMUM RATINGS**

		<b>Value</b>	
$V_{CBO}$	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	$^{\circ}C/W$
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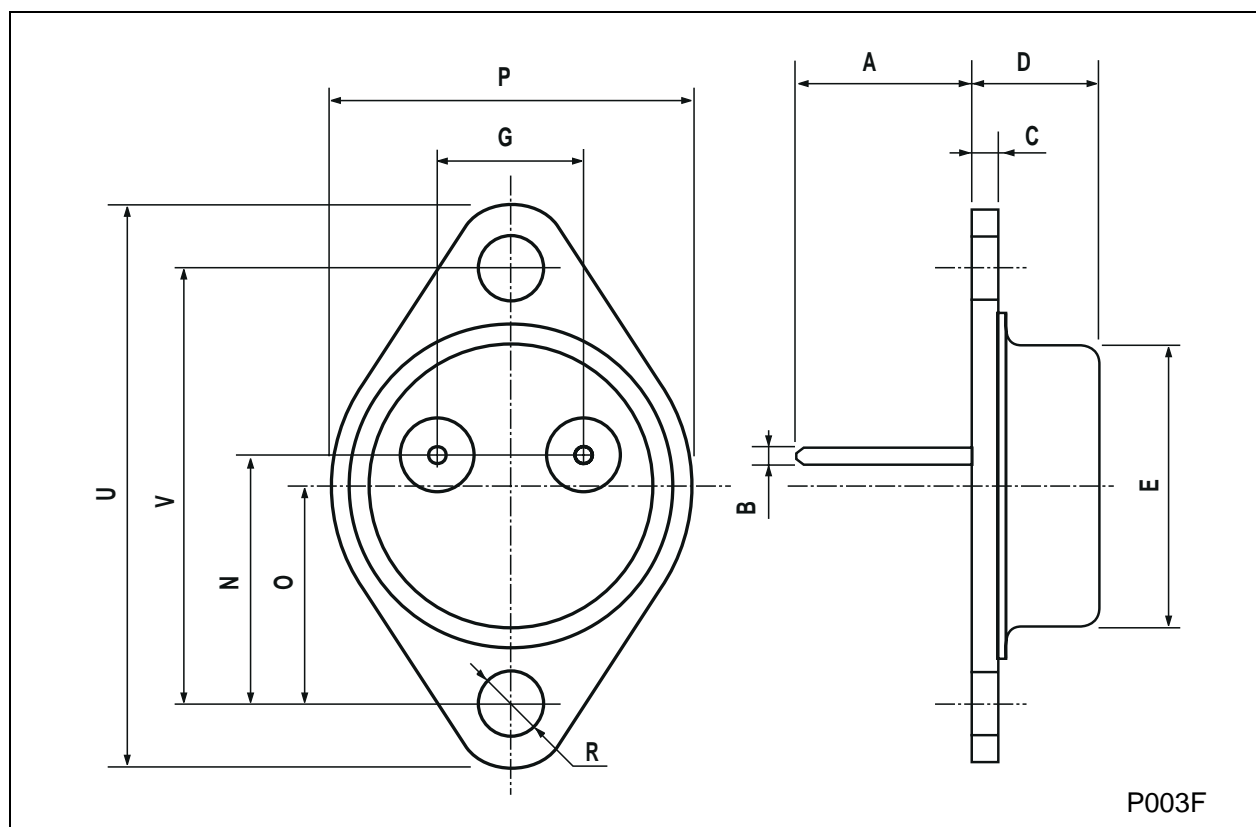
### ELECTRICAL CHARACTERISTICS ( $T_{case} = 25^{\circ}C$ unless otherwise specified)

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 ( $V_{BE} = -1.5V$ )	$V_{CE} = V_{CEV}$ $T_{case} = 150^{\circ}C$ $V_{CE} = V_{CEV}$			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	$I_C = 5 A$ $I_C = 10 A$	$I_B = 0.5 A$ $I_B = 1 A$		0.5 1.5	V V
$V_{BE(sat)}^*$	Base-emitter Saturation Voltage	$I_C = 5 A$ $I_C = 10 A$	$I_B = 0.5 A$ $I_B = 1 A$		1.2 1.5	V V
$h_{FE}^*$	DC Current Gain	$I_C = 1 A$ $I_C = 5 A$ $I_C = 10 A$	$V_{CE} = 2 V$ $V_{CE} = 5 V$ $V_{CE} = 5 V$	30 30 20	120	
$f_t$	Transition-Frequency	$I_C = 0.5 A$ $f = 5 MHz$	$V_{CE} = 5 V$	70		MHz
$t_{on}$	Turn-on Time	$I_C = 5 A$ $V_{CC} = 30 V$	$I_{B1} = 0.5 A$		0.35	$\mu s$
$t_s$	Storage Time	$I_C = 5 A$ $V_{CC} = 30 V$	$I_{B1} = -I_{B2} = 0.5 A$		1.3	$\mu s$
$t_f$	Fall Time				0.2	$\mu s$

\* Pulsed: Pulse duration = 300  $\mu s$ , 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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