

isc Silicon NPN Power Transistors

BDY94

DESCRIPTION

- Collector-Emitter Breakdown Voltage-
: $V_{(BR)CEO} = 300V(\text{Min})$
- High Switching Speed
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

APPLICATIONS

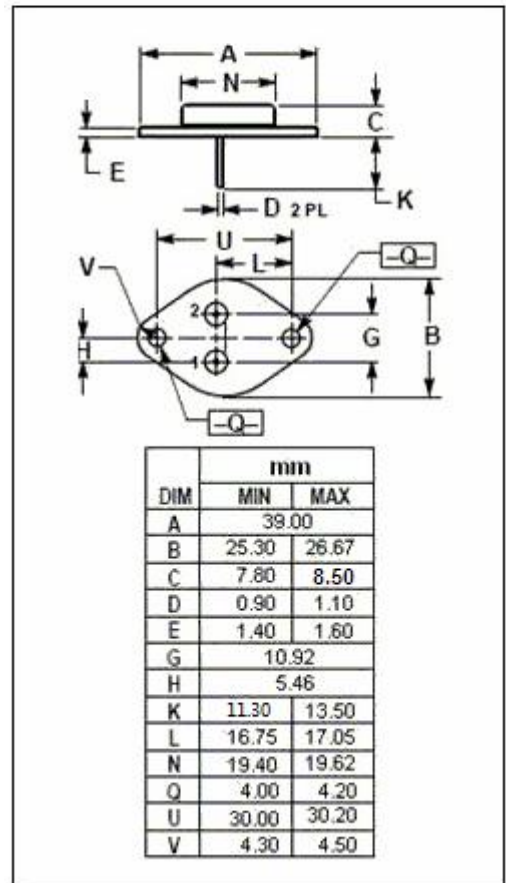
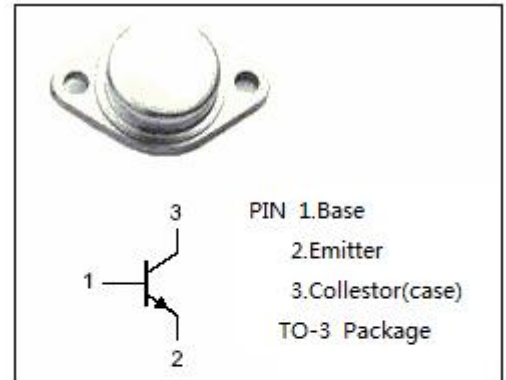
- Designed for use as high-speed power switch at high voltage.

ABSOLUTE MAXIMUM RATINGS($T_a=25^\circ\text{C}$)

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	750	V
V_{CEO}	Collector-Emitter Voltage	300	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current-Continuous	4	A
I_{CM}	Collector Current-Peak	6	A
I_B	Base Current-Continuous	2	A
I_{BM}	Base Current-Peak	3	A
P_C	Collector Power Dissipation @ $T_c=75^\circ\text{C}$	30	W
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{stg}	Storage Temperature	-65~150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-c}$	Thermal Resistance, Junction to Case	1.65	$^\circ\text{C}/\text{W}$



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ELECTRICAL CHARACTERISTICS

 $T_C=25^{\circ}\text{C}$ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	$I_C = 50\text{mA}$; $I_B = 0$	300			V
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage	$I_C = 2.5\text{A}$; $I_B = 0.5\text{A}$			1.5	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage	$I_C = 4\text{A}$; $I_B = 1.25\text{A}$			3.0	V
$V_{BE(sat)-1}$	Base-Emitter Saturation Voltage	$I_C = 2.5\text{A}$; $I_B = 0.5\text{A}$			1.4	V
$V_{BE(sat)-2}$	Base-Emitter Saturation Voltage	$I_C = 4\text{A}$; $I_B = 1.25\text{A}$			1.6	V
I_{CBO}	Collector Cutoff Current	$V_{CB}=750\text{V}$; $I_E = 0$, $V_{CB}=750\text{V}$; $I_E = 0$, $T_C=125^{\circ}\text{C}$			1.0 2.0	mA
I_{EBO}	Emitter Cutoff Current	$V_{EB} = 6\text{V}$; $I_C=0$			0.1	mA
h_{FE}	DC Current Gain	$I_C = 1\text{A}$; $V_{CE} = 5\text{V}$	15		60	
C_{OB}	Output Capacitance	$I_E = 0$; $V_{CB} = 10\text{V}$; $f_{\text{test}} = 1\text{MHz}$			500	pF
f_T	Current-Gain--Bandwidth Product	$I_C = 0.2\text{A}$; $V_{CE} = 10\text{V}$; $f_{\text{test}} = 1\text{MHz}$	4			MHz

Switching Times

t_{on}	Turn-On Time	$I_C = 2.5\text{A}$; $I_{B1} = 0.5\text{A}$; $I_{B2} = -1\text{A}$; $V_{CC} = 250\text{V}$		0.3	0.5	μs
t_{stg}	Storage Time			2.0	3.5	μs
t_f	Fall Time			0.3		μs

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