

isc Silicon NPN Power Transistor

BDY90A

DESCRIPTION

- High Current Capability
- Collector-Emitter Sustaining Voltage-
: $V_{CEQ(SUS)} = 100V(\text{Min})$
- High Switching Speed
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

APPLICATIONS

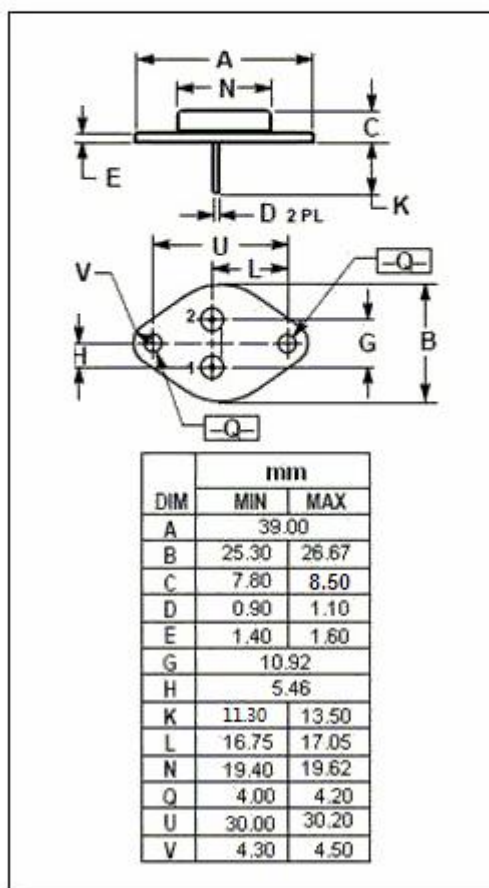
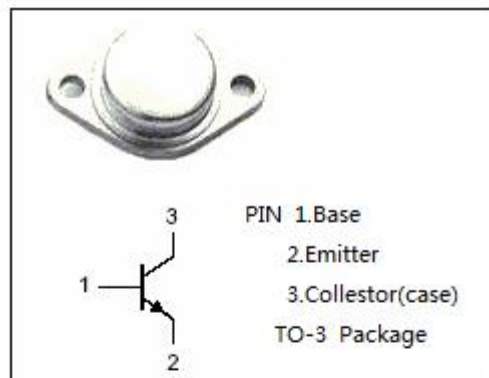
- Designed for use in converters, inverters, switching regulators and switching control amplifiers.

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	120	V
V_{CEO}	Collector-Emitter Voltage	100	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current-Continuous	12	A
I_{CM}	Collector Current-Peak	15	A
I_B	Base Current-Continuous	2	A
P_C	Collector Power Dissipation@ $T_C=25^\circ\text{C}$	60	W
T_J	Junction Temperature	175	$^\circ\text{C}$
T_{stg}	Storage Temperature	-65~175	$^\circ\text{C}$

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-c}$	Thermal Resistance, Junction to Case	2.0	$^\circ\text{C}/\text{W}$



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ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C=30\text{mA}$; $I_B=0$	100			V
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage	$I_C= 5\text{A}$; $I_B= 0.5\text{A}$			0.5	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage	$I_C= 12\text{A}$; $I_B= 1.2\text{A}$			1.0	V
$V_{BE(sat)-1}$	Base-Emitter Saturation Voltage	$I_C= 5\text{A}$; $I_B= 0.5\text{A}$			1.2	V
$V_{BE(sat)-2}$	Base-Emitter Saturation Voltage	$I_C= 12\text{A}$; $I_B= 1.2\text{A}$			1.5	V
I_{EBO}	Emitter Cutoff Current	$V_{EB}= 6\text{V}$; $I_C=0$			0.1	mA
h_{FE-1}	DC Current Gain	$I_C= 1\text{A}$; $V_{CE}= 2\text{V}$	30			
h_{FE-2}	DC Current Gain	$I_C= 5\text{A}$; $V_{CE}= 5\text{V}$	30		120	
h_{FE-3}	DC Current Gain	$I_C= 12\text{A}$; $V_{CE}= 5\text{V}$	20			
f_T	Current Gain-Bandwidth Product	$I_C= 0.5\text{A}$; $V_{CE}= 5\text{V}$; $f_{test}= 5\text{MHz}$		70		MHz

Switching Times

t_{on}	Turn-On Time	$I_C= 5\text{A}$; $I_{B1}= -I_{B2}=0.5\text{A}$; $V_{CC}= 30\text{V}$			0.35	μs
t_s	Storage Time				1.3	μs
t_f	Fall Time				0.2	μs

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