

isc Silicon NPN Power Transistor

BDY45

DESCRIPTION

- Collector-Emitter Breakdown Voltage-
: $V_{(BR)CEO} = 250V(\text{Min.})$
- DC Current Gain-
: $h_{FE} = 20(\text{Min.}) @ I_C = 2A$
- Collector-Emitter Saturation Voltage-
: $V_{CE(sat)} = 1.5V(\text{Max}) @ I_C = 15A$
- High Switching Speed

APPLICATIONS

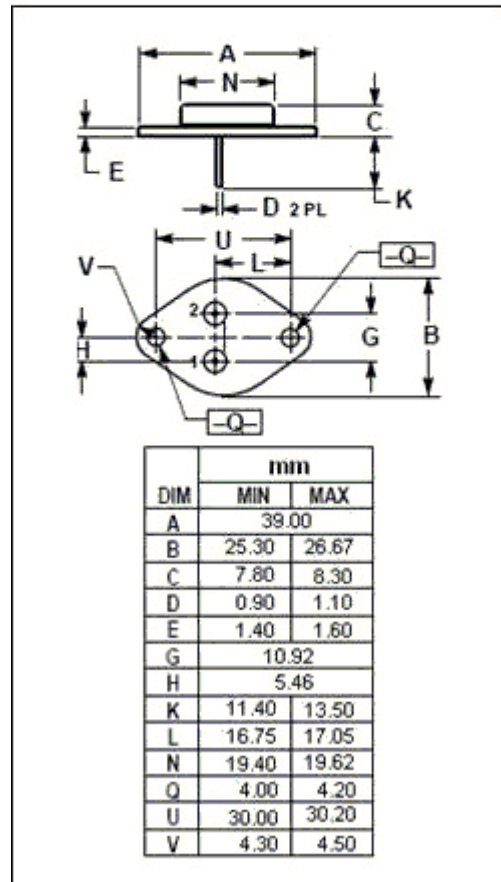
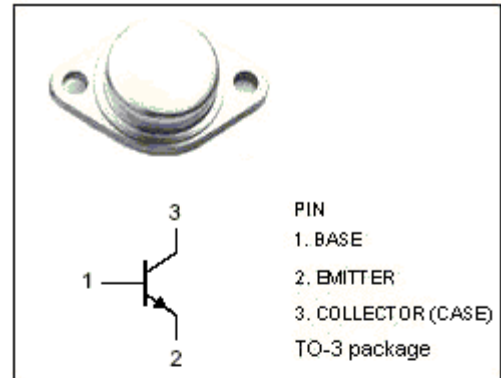
- Voltage regulator
- Inverter
- Switching mode power supply

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	400	V
V_{CES}	Collector-Emitter Voltage	400	V
V_{CEO}	Collector-Emitter Voltage	250	V
V_{EBO}	Emitter-Base Voltage	7	V
I_C	Collector Current-Continuous	15	A
I_{CM}	Collector Current-Peak	17	A
I_B	Base Current	5	A
P_C	Collector Power Dissipation @ $T_C \leq 45^\circ C$	95	W
T_J	Junction Temperature	175	$^\circ C$
T_{stg}	Storage Temperature	-65~175	$^\circ C$

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th(j-c)}$	Thermal Resistance, Junction to Case	1.37	$^\circ C/W$



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ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	$I_C=200\text{mA}; I_B=0$	250		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C=1\text{mA}; I_E=0$	400		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E=2\text{mA}; I_C=0$	7		V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=15\text{A}; I_B=5\text{A}$		1.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=15\text{A}; I_B=5\text{A}$		2.0	V
I_{CBO}	Collector Cutoff Current	$V_{CB}=400\text{V}; I_E=0$ $V_{CB}=400\text{V}; I_E=0, T_C=150^{\circ}\text{C}$		0.2 2.5	mA
h_{FE-1}	DC Current Gain	$I_C=2\text{A}; V_{CE}=2\text{V}$	20		
h_{FE-2}	DC Current Gain	$I_C=10\text{A}; V_{CE}=2\text{V}$	5		
f_T	Current Gain-Bandwidth Product	$I_C=0.5\text{A}; V_{CE}=10\text{V}$	10		MHz

Switching times

t_{on}	Turn-on Time	$I_C=5\text{A}; I_{B1}=-I_{B2}=1\text{A}$		0.5	μs
t_f	Fall Time			1.0	μs
t_{off}	Turn-off Time			3.5	μs