

## isc Silicon NPN Power Transistor

## BDY44

## DESCRIPTION

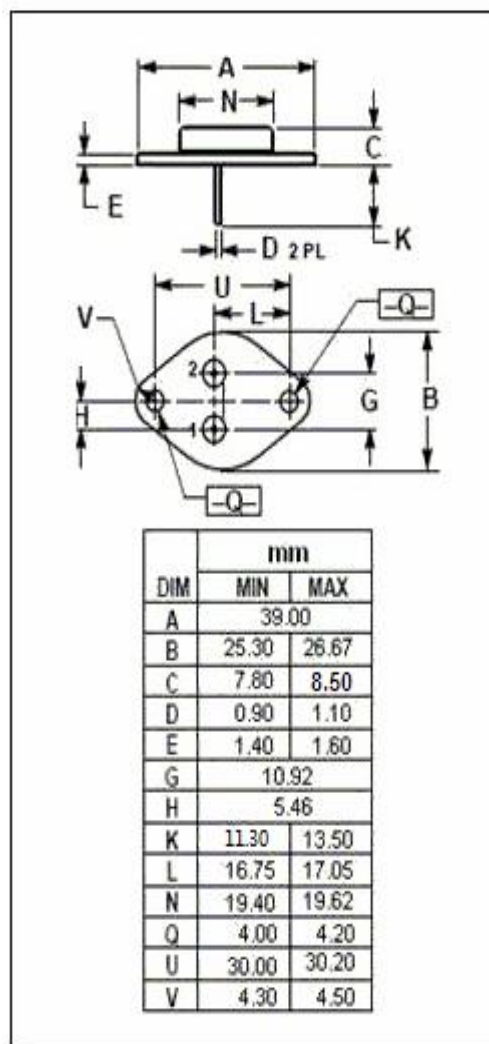
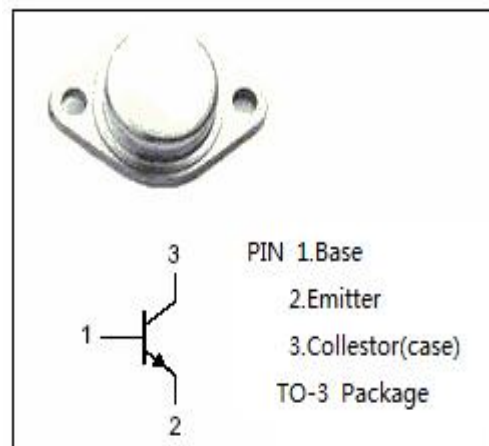
- Collector-Emitter Breakdown Voltage-  
:  $V_{(BR)CEO} = 350V(\text{Min.})$
- DC Current Gain-  
:  $h_{FE} = 20(\text{Min.}) @ I_C = 1A$
- Collector-Emitter Saturation Voltage-  
:  $V_{CE(sat)} = 1.5V(\text{Max}) @ I_C = 5A$
- High Switching Speed
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

## APPLICATIONS

- Voltage regulator
- Inverter
- Switching mode power supply

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

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector-Base Voltage	750	V
$V_{CES}$	Collector-Emitter Voltage	750	V
$V_{CEO}$	Collector-Emitter Voltage	350	V
$V_{EBO}$	Emitter-Base Voltage	7	V
$I_C$	Collector Current-Continuous	5	A
$I_{CM}$	Collector Current-Peak	10	A
$I_B$	Base Current	3	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	$^\circ\text{C}$



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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	$I_C = 30\text{mA}; I_B = 0$	350		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 1\text{mA}; I_E = 0$	750		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 1\text{mA}; I_C = 0$	7		V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 5\text{A}; I_B = 1.5\text{A}$		1.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 5\text{A}; I_B = 1.5\text{A}$		2.0	V
$I_{CBO}$	Collector Cutoff Current	$V_{CB} = 750\text{V}; I_E = 0$ $V_{CB} = 750\text{V}; I_E = 0, T_C = 150^{\circ}\text{C}$		0.2 2.0	mA
$h_{FE-1}$	DC Current Gain	$I_C = 1\text{A}; V_{CE} = 2\text{V}$	20		
$h_{FE-2}$	DC Current Gain	$I_C = 5\text{A}; V_{CE} = 2\text{V}$	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	$I_C = 2.5\text{A}; I_{B1} = -I_{B2} = 0.5\text{A}$		0.5	$\mu\text{s}$
$t_f$	Fall Time			1.0	$\mu\text{s}$
$t_{off}$	Turn-off Time			4.0	$\mu\text{s}$

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