

**isc Silicon NPN Power Transistor**

**BDY46**

**DESCRIPTION**

- Collector-Emitter Breakdown Voltage-  
:  $V_{(BR)CEO} = 300V(\text{Min.})$
- 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**

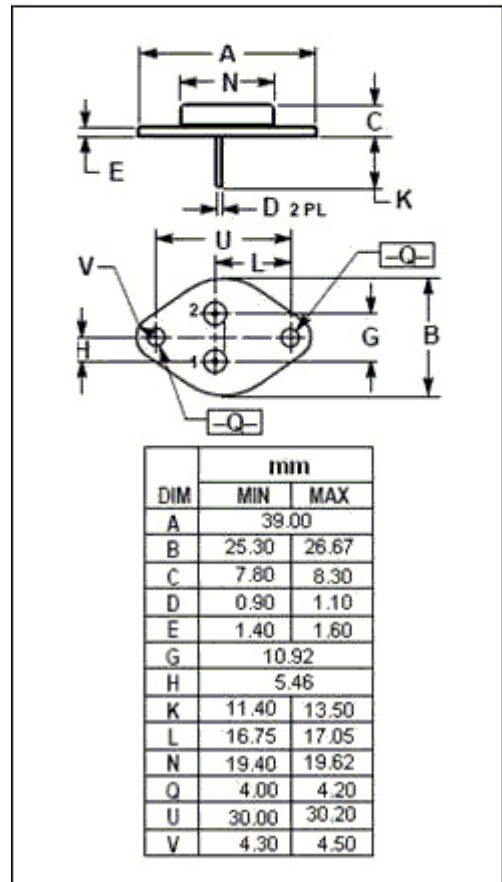
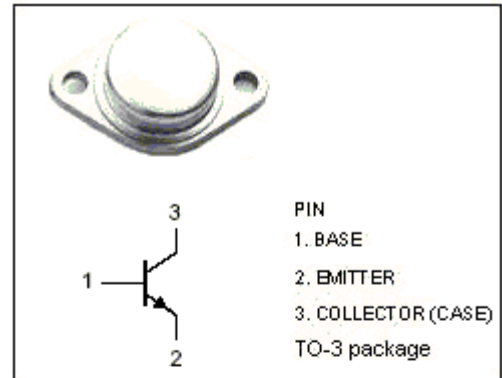
- Voltage regulator
- Inverter
- Switching mode power supply

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

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector-Base Voltage	600	V
$V_{CES}$	Collector-Emitter Voltage	600	V
$V_{CEO}$	Collector-Emitter Voltage	300	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	$I_C=200\text{mA}; I_B=0$	300		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C=1\text{mA}; I_E=0$	600		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	$V_{CB}=600\text{V}; I_E=0$ $V_{CB}=600\text{V}; I_E=0, T_C=150^\circ\text{C}$		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	$\mu\text{s}$
$t_f$	Fall Time			1.0	$\mu\text{s}$
$t_{off}$	Turn-off Time			3.5	$\mu\text{s}$