

**isc Silicon NPN Power Transistor**
**BDY53**
**DESCRIPTION**

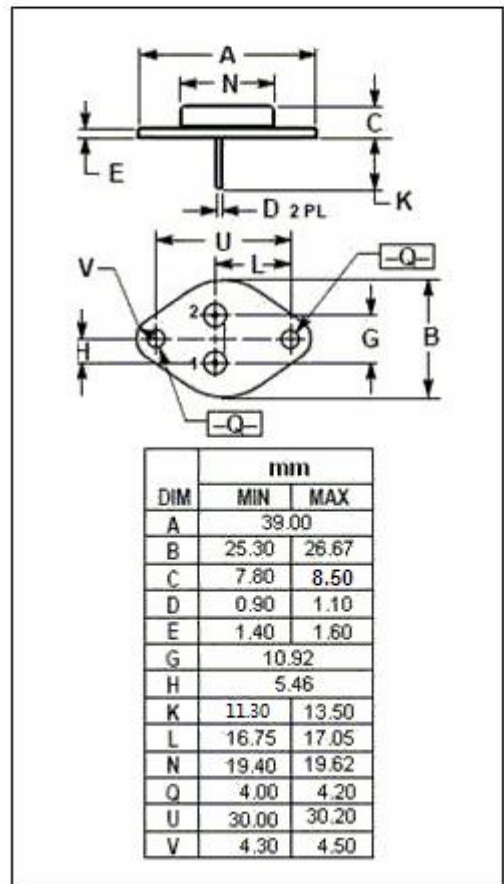
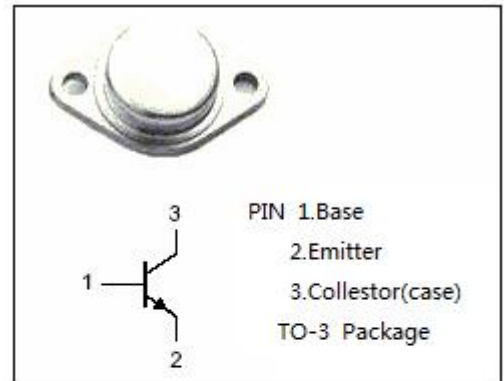
- Collector-Emitter Sustaining Voltage-  
:  $V_{CE(SUS)}=60V(\text{Min.})$
- Collector-Emitter Saturation Voltage-  
:  $V_{CE(sat)}= 1.1 V(\text{Max})@ I_c = 4A$
- High Switching Speed
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

**APPLICATIONS**

- Designed for general-purpose switching and amplifier applications

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

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector-Base Voltage	100	V
$V_{CEO}$	Collector-Emitter Voltage	60	V
$V_{EBO}$	Emitter-Base Voltage	7	V
$I_c$	Collector Current-Continuous	12	A
$I_B$	Base Current	5	A
$P_c$	Collector Power Dissipation@ $T_c=25^\circ\text{C}$	60	W
$T_J$	Junction Temperature	200	$^\circ\text{C}$
$T_{stg}$	Storage Temperature	-65~200	$^\circ\text{C}$



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**ELECTRICAL CHARACTERISTICS**

 T<sub>C</sub>=25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V <sub>CEQ(SUS)</sub>	Collector-Emitter Sustaining Voltage	I <sub>C</sub> = 30mA; I <sub>B</sub> = 0	60			V
V <sub>CE(sat)-1</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 4A; I <sub>B</sub> = 0.4A			1.1	V
V <sub>CE(sat)-2</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 7A; I <sub>B</sub> = 1.4A			2.2	V
V <sub>BE(sat)-1</sub>	Base-Emitter Saturation Voltage	I <sub>C</sub> = 4A; I <sub>B</sub> = 0.4A			2.0	V
V <sub>BE(sat)-2</sub>	Base-Emitter Saturation Voltage	I <sub>C</sub> = 7A; I <sub>B</sub> = 1.4A			2.5	V
I <sub>CEX</sub>	Collector Cutoff Current	V <sub>CE</sub> = 100V; V <sub>BE</sub> =-1.5V, T <sub>C</sub> =150°C			15	mA
I <sub>EBO</sub>	Emitter Cutoff Current	V <sub>EB</sub> = 7V; I <sub>C</sub> = 0			3.0	mA
h <sub>FE</sub>	DC Current Gain	I <sub>C</sub> = 2A; V <sub>CE</sub> = 1.5V	20			
f <sub>T</sub>	Current Gain-Bandwidth Product	I <sub>C</sub> = 0.5A; V <sub>CE</sub> = 4V; f=10MHz	20			MHz
Switching Times						
t <sub>on</sub>	Turn-On Time	I <sub>C</sub> = 5A; I <sub>B</sub> = 1A		0.3		μs
t <sub>off</sub>	Turn-Off Time	I <sub>C</sub> = 5A; I <sub>B1</sub> = 1A; I <sub>B2</sub> = -0.5A		1.8		μs

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