

isc Silicon NPN Power Transistor

BDY54

DESCRIPTION

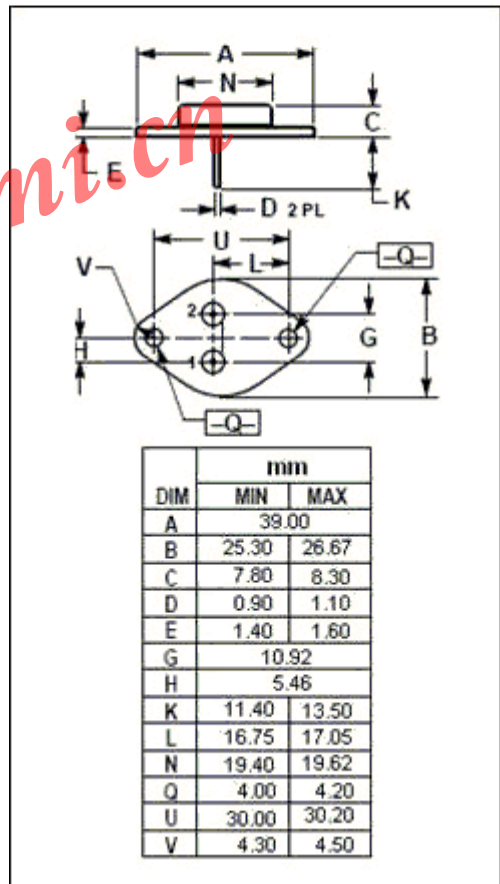
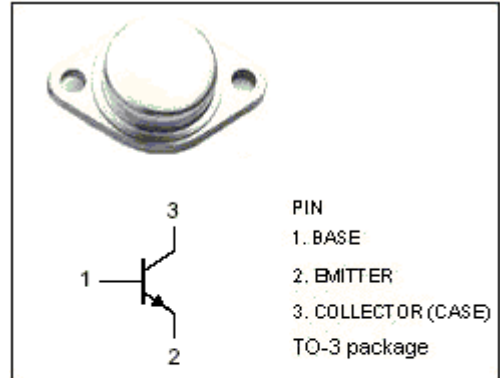
- Collector-Emitter Sustaining Voltage-
: $V_{CE(SUS)} = 120V(\text{Min.})$
- Collector-Emitter Saturation Voltage-
: $V_{CE(sat)} = 1.1 V(\text{Max}) @ I_C = 4A$
- High Switching Speed

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	180	V
V_{CEO}	Collector-Emitter Voltage	120	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

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C=100\text{mA}; I_B=0$	120			V
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage	$I_C=4\text{A}; I_B=0.4\text{A}$			1.1	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage	$I_C=7\text{A}; I_B=1.4\text{A}$			2.2	V
$V_{BE(sat)-1}$	Base-Emitter Saturation Voltage	$I_C=4\text{A}; I_B=0.4\text{A}$			2.0	V
$V_{BE(sat)-2}$	Base-Emitter Saturation Voltage	$I_C=7\text{A}; I_B=1.4\text{A}$			2.5	V
I_{CEX}	Collector Cutoff Current	$V_{CE}=150\text{V}; V_{BE}=-1.5\text{V}; T_C=150^{\circ}\text{C}$			15	mA
I_{EBO}	Emitter Cutoff Current	$V_{EB}=7\text{V}; I_C=0$			3.0	mA
h_{FE}	DC Current Gain	$I_C=2\text{A}; V_{CE}=1.5\text{V}$	20			
f_T	Current Gain-Bandwidth Product	$I_C=0.5\text{A}; V_{CE}=4\text{V}; f=10\text{MHz}$	20			MHz

Switching Times

t_{on}	Turn-On Time	$I_C=5\text{A}; I_B=1\text{A}$		0.3		μs
t_{off}	Turn-Off Time	$I_C=5\text{A}; I_{B1}=1\text{A}; I_{B2}=-0.5\text{A}$		1.8		μs