

isc Silicon NPN Power Transistor

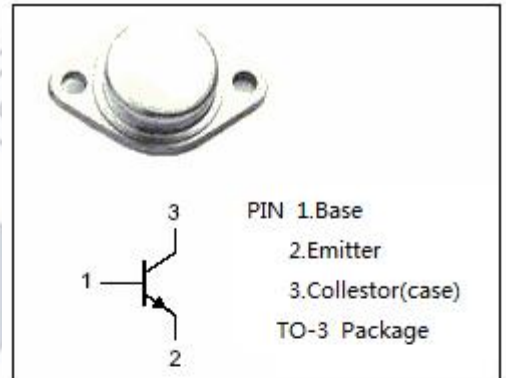
BDY55X

DESCRIPTION

- Excellent Safe Operating Area
- DC Current Gain-
: $h_{FE}=20-100@I_C = 4A$
- Collector-Emitter Saturation Voltage-
: $V_{CE(sat)}= 1.1 V(Max)@ I_C = 4A$

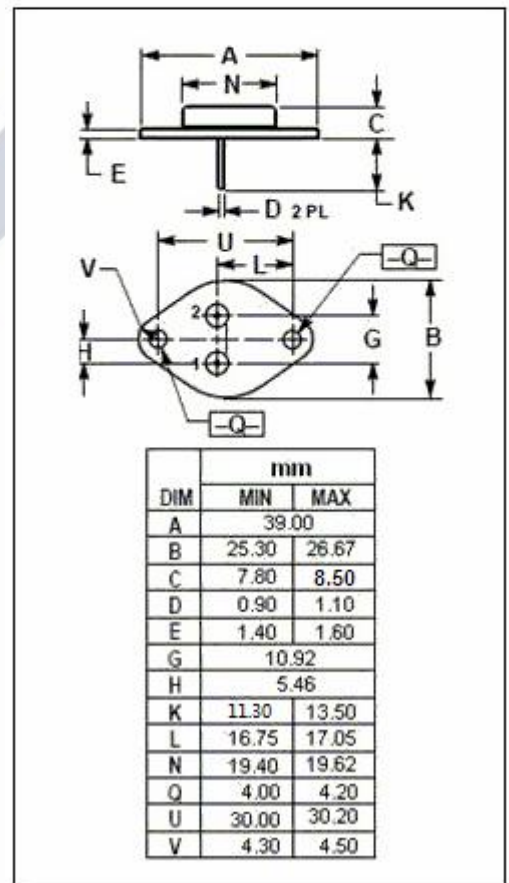
APPLICATIONS

- Designed for general-purpose switching and amplifier applications



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

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	15	A
I_B	Base Current	7	A
P_C	Collector Power Dissipation@ $T_C=25^{\circ}C$	117	W
T_J	Junction Temperature	200	$^{\circ}C$
T_{stg}	Storage Temperature	-65~200	$^{\circ}C$



THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-c}$	Thermal Resistance,Junction to Case	1.5	$^{\circ}C/W$

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ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
$V_{CE(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C=30\text{mA}; I_B=0$	60		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	$I_C=10\text{A}; I_B=3.3\text{A}$		2.5	V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C=4\text{A}; V_{CE}=4\text{V}$		1.8	V
I_{CEO}	Collector Cutoff Current	$V_{CE}=30\text{V}; I_B=0$		0.7	mA
I_{CEX}	Collector Cutoff Current	$V_{CE}=100\text{V}; V_{BE}=-1.5\text{V}$ $V_{CE}=100\text{V}; V_{BE}=-1.5\text{V}; T_C=150^\circ\text{C}$		5.0 30	mA
I_{EBO}	Emitter Cutoff Current	$V_{EB}=7\text{V}; I_C=0$		5.0	mA
h_{FE-1}	DC Current Gain	$I_C=4\text{A}; V_{CE}=4\text{V}$	20	100	
h_{FE-2}	DC Current Gain	$I_C=10\text{A}; V_{CE}=4\text{V}$	10		
f_T	Current Gain-Bandwidth Product	$I_C=1\text{A}; V_{CE}=4\text{V}; f=10\text{MHz}$	10		MHz

Switching Times

t_{on}	Turn-On Time	$I_C=5\text{A}; I_B=1\text{A}$		0.5	μs
t_{off}	Turn-Off Time	$I_C=5\text{A}; I_{B1}=1\text{A}; I_{B2}=-0.5\text{A}$		2.0	μs