

isc Silicon NPN Power Transistor
BDY13-6
DESCRIPTION

- Collector-Emitter Breakdown Voltage-
: $V_{(BR)CEO} = 60V(\text{Min.})$
- Collector-Emitter Saturation Voltage-
: $V_{CE(sat)} = 1V(\text{Max}) @ I_C = 3A$
- High Switching Speed
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

APPLICATIONS

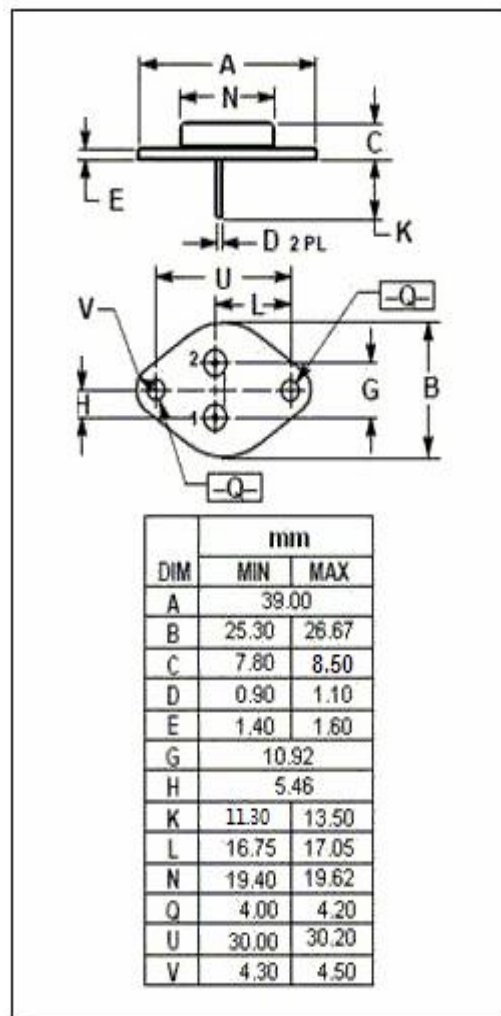
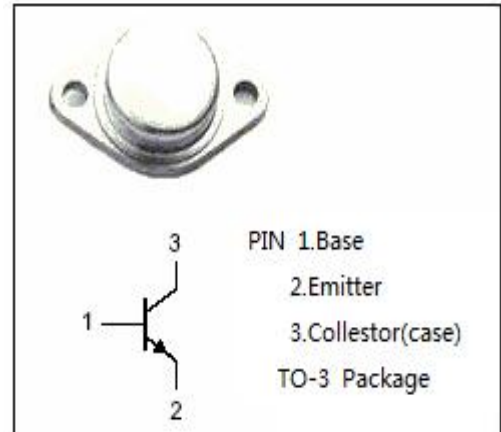
- Designed for LF signal powe amplifier applications.

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	80	V
V_{CEO}	Collector-Emitter Voltage	60	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current-Continuous	5	A
I_B	Base Current	0.3	A
P_C	Collector Power Dissipation@ $T_C=45^\circ\text{C}$	26	W
T_J	Junction Temperature	175	$^\circ\text{C}$
T_{stg}	Storage Temperature	-65~125	$^\circ\text{C}$

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-c}$	Thermal Resistance, Junction to Case	5	$^\circ\text{C/W}$



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ELECTRICAL CHARACTERISTICS

T_C=25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V _{(BR)CEO}	Collector-Emitter Breakdown Voltage	I _C = 50mA; I _B = 0	80			V
V _{(BR)CBO}	Collector-Base Breakdown Voltage	I _C = 100uA; I _E = 0	60			V
V _{CE(sat)}	Collector-Emitter Saturation Voltage	I _C = 3A; I _B = 0.3A			1	V
V _{BE(sat)}	Base-Emitter Saturation Voltage	I _C =3A; I _B = 0.3A			1.3	V
I _{CES}	Collector Cutoff Current	V _{CE} = 60V; V _{BE} = 0			1.0	uA
I _{EBO}	Emitter Cutoff Current	V _{EB} = 4V; I _C = 0			1.0	uA
h _{FE1}	DC Current Gain	I _C = 0.01A; V _{CE} = 1V		55		
h _{FE2}	DC Current Gain	I _C = 1A; V _{CE} = 1V	40	63	100	
h _{FE3}	DC Current Gain	I _C = 3A; V _{CE} = 2V		40		
f _T	Current Gain-Bandwidth Product	I _C = 0.2A; V _{CE} = 10V; f=20MHz	30			MHz

Switching Times

t _{on}	Turn-On Time	I _C = 1A; I _B = 50mA			0.3	μs
t _{off}	Turn-Off Time	I _C = 1A; I _{B1} = 50mA;			1.5	μs

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