

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

APPLICATIONS

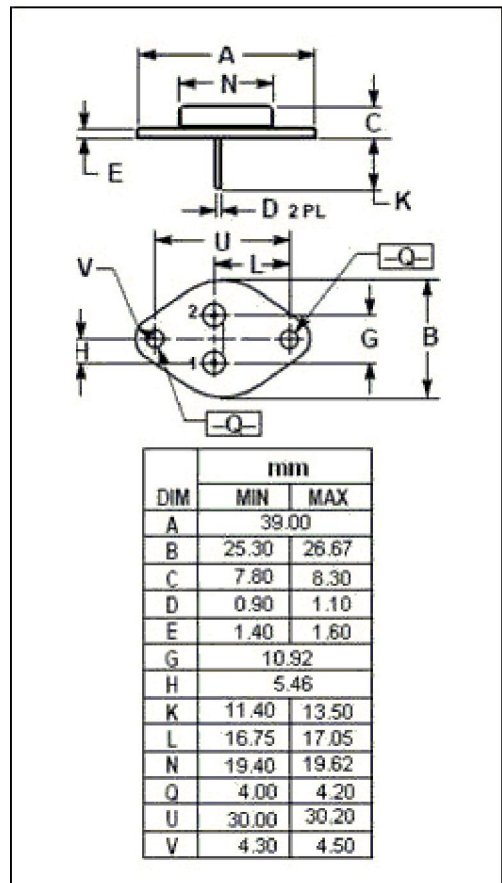
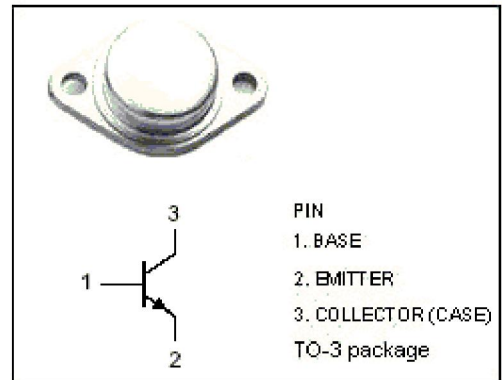
- Designed for LF signal powe amplifier applications.

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@ $T_C=25^\circ\text{C}$	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

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	$I_C=50\text{mA}; I_B=0$	80			V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C=100\mu\text{A}; I_E=0$	60			V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=3\text{A}; I_B=0.3\text{A}$			1	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=3\text{A}; I_B=0.3\text{A}$			1.3	V
I_{CES}	Collector Cutoff Current	$V_{CE}=60\text{V}; V_{BE}=0$			1.0	μA
I_{EBO}	Emitter Cutoff Current	$V_{EB}=4\text{V}; I_C=0$			1.0	μA
h_{FE1}	DC Current Gain	$I_C=0.01\text{A}; V_{CE}=1\text{V}$		55		
h_{FE2}	DC Current Gain	$I_C=1\text{A}; V_{CE}=1\text{V}$	40	63	100	
h_{FE3}	DC Current Gain	$I_C=3\text{A}; V_{CE}=2\text{V}$		40		
f_T	Current Gain-Bandwidth Product	$I_C=0.2\text{A}; V_{CE}=10\text{V}; f=20\text{MHz}$	30			MHz

Switching Times

t_{on}	Turn-On Time	$I_C=1\text{A}; I_B=50\text{mA}$			0.3	μs
t_{off}	Turn-Off Time	$I_C=1\text{A}; I_{B1}=50\text{mA};$			1.5	μs