

## isc Silicon NPN Power Transistor

BD333

## DESCRIPTION

- High DC Current Gain
- Complement to type BD334
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

## APPLICATIONS

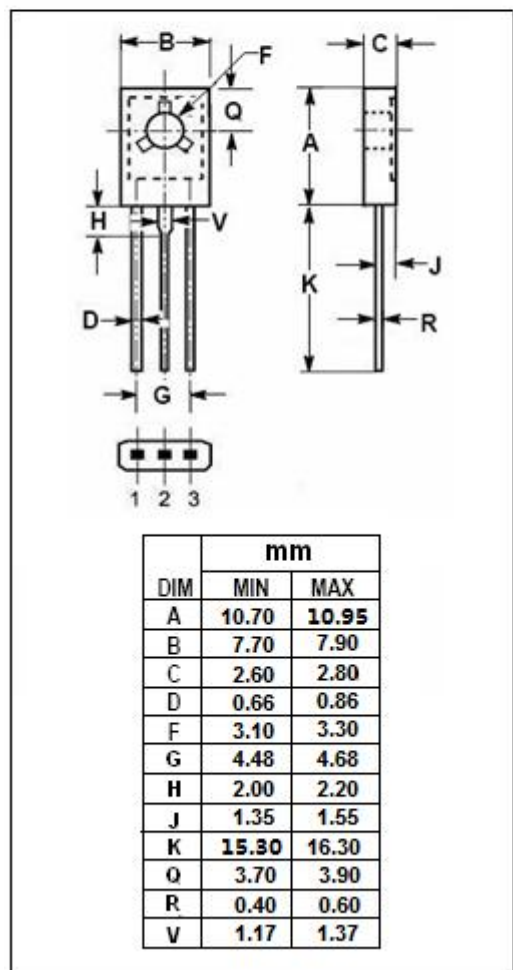
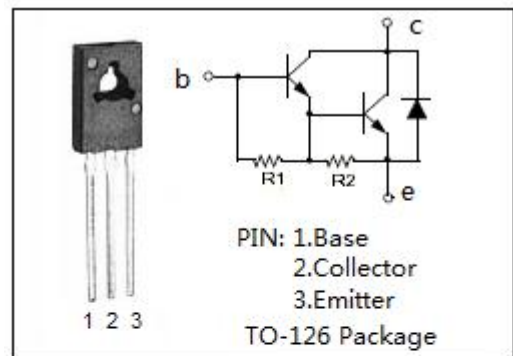
- NPN epitaxial base transistors in monolithic Darlington circuit for audio output stages and general amplifier and switching applications.

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	80	V
$V_{EBO}$	Emitter-Base Voltage	6	V
$I_C$	Collector Current-Continuous	6	A
$I_{BM}$	Base Current-Peak	0.15	A
$P_C$	Collector Power Dissipation @ $T_C=25^{\circ}\text{C}$	60	W
$T_J$	Junction Temperature	150	$^{\circ}\text{C}$
$T_{stg}$	Storage Temperature Range	-65~150	$^{\circ}\text{C}$

## THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-c}$	Thermal Resistance, Junction to Case	2.08	$^{\circ}\text{C/W}$
$R_{th\ j-a}$	Thermal Resistance, Junction to Ambient	100	$^{\circ}\text{C/W}$



**isc Silicon NPN Power Transistor****BD333****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> = 10mA; I <sub>B</sub> = 0	80			V
V <sub>CE(sat)</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 3A; I <sub>B</sub> = 12mA			2.0	V
V <sub>BE(on)</sub>	Base-Emitter On Voltage	I <sub>C</sub> = 3A; V <sub>CE</sub> = 3V			2.5	V
I <sub>CBO</sub>	Collector Cutoff Current	V <sub>CB</sub> = 60V; I <sub>E</sub> = 0 V <sub>CB</sub> = 60V; I <sub>E</sub> = 0, T <sub>C</sub> =150°C			0.1 1.0	mA
I <sub>EBO</sub>	Emitter Cutoff Current	V <sub>EB</sub> = 5V; I <sub>C</sub> = 0			5	mA
h <sub>FE-1</sub> *	DC Current Gain	I <sub>C</sub> = 0.5A; V <sub>CE</sub> = 3V		1900		
h <sub>FE-2</sub> *	DC Current Gain	I <sub>C</sub> = 3A; V <sub>CE</sub> =3V	750			
h <sub>FE-3</sub> *	DC Current Gain	I <sub>C</sub> = 6A; V <sub>CE</sub> = 3V		3000		

\*:Measured under pulse conditions:tp&lt;300us,σ&lt;2%

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