

**isc Silicon NPN Power Transistor**
**BD533**
**DESCRIPTION**

- DC Current Gain -  
:  $h_{FE} = 40 @ I_C = 0.5A$
- Collector-Emitter Sustaining Voltage-  
:  $V_{CEO(SUS)} = 45V(\text{Min})$
- Complement to Type BD534
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

**APPLICATIONS**

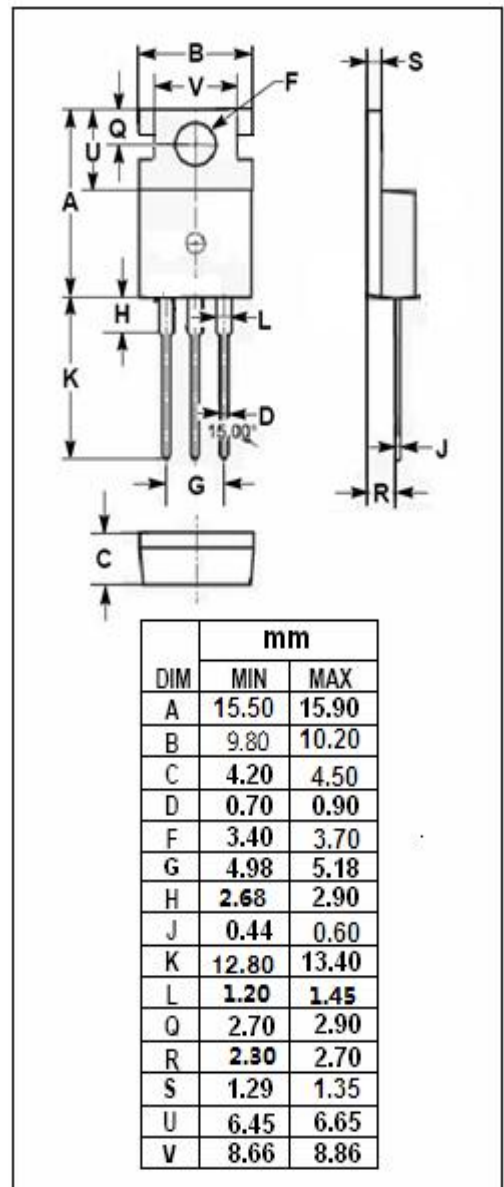
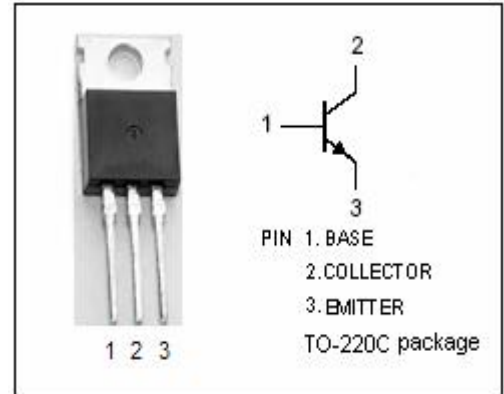
- Designed for use in medium power linear and switching applications.

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

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector-Base Voltage	45	V
$V_{CES}$	Collector-Emitter Voltage	45	V
$V_{CEO}$	Collector-Emitter Voltage	45	V
$V_{EBO}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current-Continuous	8	A
$I_B$	Base Current	1	A
$P_C$	Collector Power Dissipation @ $T_C=25^\circ\text{C}$	50	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	2.5	$^\circ\text{C/W}$
$R_{th\ j-a}$	Thermal Resistance, Junction to Ambient	70	$^\circ\text{C/W}$



**isc Silicon NPN Power Transistor****BD533****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	$I_C=30\text{mA}; I_B=0$	45			V
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage	$I_C=2\text{A}; I_B=0.2\text{A}$			0.8	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage	$I_C=6\text{A}; I_B=0.6\text{A}$		0.8		V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C=2\text{A}; V_{CE}=2\text{V}$			1.5	V
$I_{CBO}$	Collector Cutoff Current	$V_{CB}=45\text{V}; I_E=0$			0.1	mA
$I_{CES}$	Collector Cutoff Current	$V_{CE}=45\text{V}; V_{BE}=0$			0.1	mA
$I_{EBO}$	Emitter Cutoff Current	$V_{EB}=5\text{V}; I_C=0$			1.0	mA
$h_{FE-1}$	DC Current Gain	$I_C=10\text{mA}; V_{CE}=5\text{V}$	20			
$h_{FE-2}$	DC Current Gain	$I_C=0.5\text{A}; V_{CE}=2\text{V}$	40			
$h_{FE-3}$	DC Current Gain	$I_C=2\text{A}; V_{CE}=2\text{V}$	25			
$f_T$	Current-Gain—Bandwidth Product	$I_C=0.5\text{A}; V_{CE}=1\text{V}$	3.0	12		MHz

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