

**isc Silicon NPN Power Transistor**

**BD201/203**

**DESCRIPTION**

- Collector-Emitter Breakdown Voltage-  
:  $V_{(BR)CEO} = 45V(\text{Min})$ - BD201  
60V(Min)- BD203
- Complement to Type BD202/204

**APPLICATIONS**

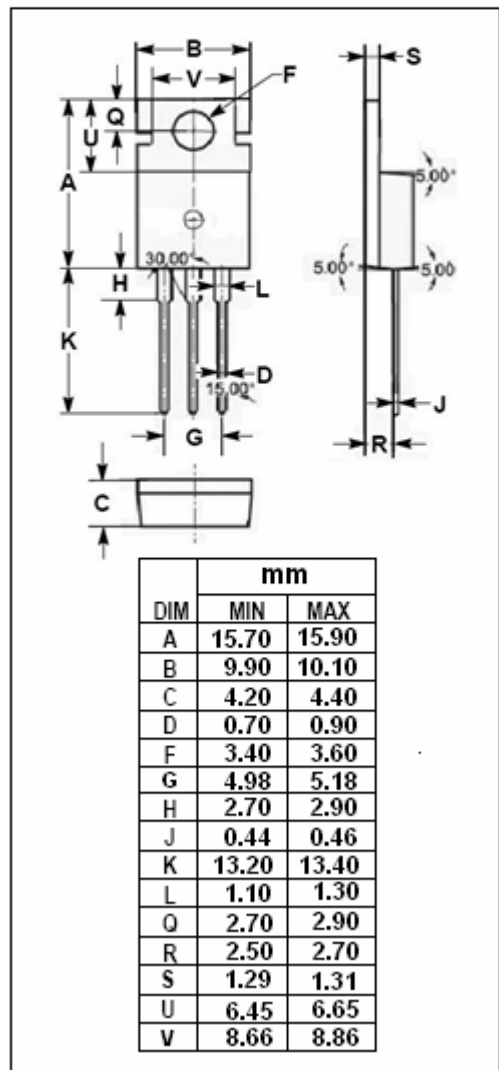
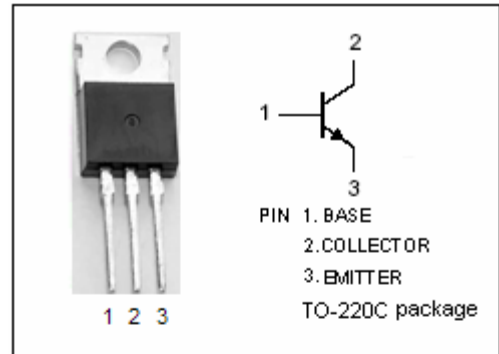
- Designed for use in hi-fi equipment delivering an output of 15 to 15 W into a 4 Ω or 8 Ω load.

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

SYMBOL	PARAMETER	VALUE	UNIT	
$V_{CBO}$	Collector-Base Voltage	BD201	60	V
		BD203	60	
$V_{CEO}$	Collector-Emitter Voltage	BD201	45	V
		BD203	60	
$V_{EBO}$	Emitter-Base Voltage	5	V	
$I_C$	Collector Current-Continuous	8	A	
$I_{CM}$	Collector Current-Peak $t_p \leq 10\text{ms}$	12	A	
$I_{CSM}$	Collector Current-Peak $t_p \leq 2\text{ms}$	25	A	
$I_B$	Base Current	3	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	$^\circ\text{C}/\text{W}$
$R_{th\ j-a}$	Thermal Resistance, Junction to Ambient	70	$^\circ\text{C}/\text{W}$



## isc Silicon NPN Power Transistor

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## ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER		CONDITIONS	MIN	MAX	UNIT
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	BD201	$I_C=0.2\text{A}; I_B=0$	45		V
		BD203		60		
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage		$I_C=1\text{mA}; I_E=0$	60		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage		$I_E=1\text{mA}; I_C=0$	5		V
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage		$I_C=3\text{A}; I_B=0.3\text{A}$		1.0	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage		$I_C=6\text{A}; I_B=0.6\text{A}$		1.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage		$I_C=6\text{A}; I_B=0.6\text{A}$		2.0	V
$V_{BE(on)}$	Base-Emitter On Voltage		$I_C=3\text{A}; V_{CE}=2\text{V}$		1.5	V
$I_{CEO}$	Collector Cutoff Current		$V_{CE}=30\text{V}; I_B=0$		0.2	mA
$I_{CBO}$	Collector Cutoff Current		$V_{CB}=40\text{V}; I_E=0; T_J=150^\circ\text{C}$		1.0	mA
$I_{EBO}$	Emitter Cutoff Current		$V_{EB}=5\text{V}; I_C=0$		0.5	mA
$h_{FE}$	DC Current Gain	BD201	$I_C=3\text{A}; V_{CE}=2\text{V}$	30		
		BD203	$I_C=2\text{A}; V_{CE}=2\text{V}$			
$f_T$	Current-Gain—Bandwidth Product		$I_C=0.3\text{A}; V_{CE}=3\text{V}; f_{test}=1.0\text{MHz}$	7.0		MHz

## Switching Times

$t_{on}$	Turn-On Time	$I_C=2\text{A}; I_{B1}=-I_{B2}=0.2\text{A}$	1	$\mu\text{s}$
$t_{off}$	Turn-Off Time		4	$\mu\text{s}$