

SPTECH 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

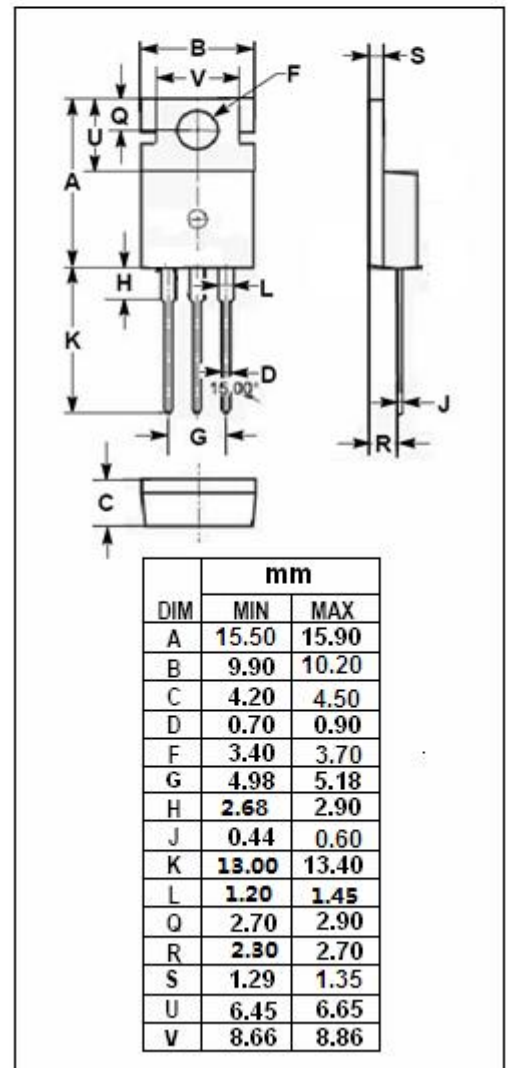
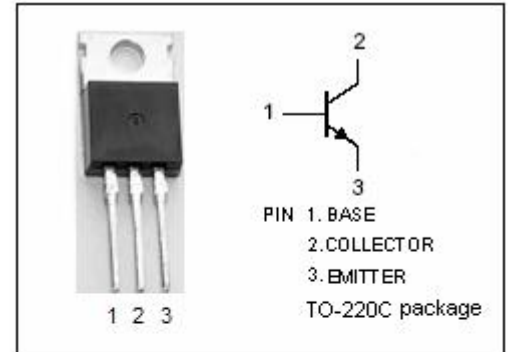
- Designed for use in hi-fi equipment delivering an output of 15 to 15 W into a 4 Ω or 8 Ω load.

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	BD201	60
		BD203	60
V_{CEO}	Collector-Emitter Voltage	BD201	45
		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	$^\circ\text{C/W}$
$R_{th\ j-a}$	Thermal Resistance, Junction to Ambient	70	$^\circ\text{C/W}$



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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	$I_C = 50\text{mA}; I_B = 0$	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	μs
t_{off}	Turn-Off Time			4	μs