

isc Silicon NPN Power Transistor
BD233/235/237
DESCRIPTION

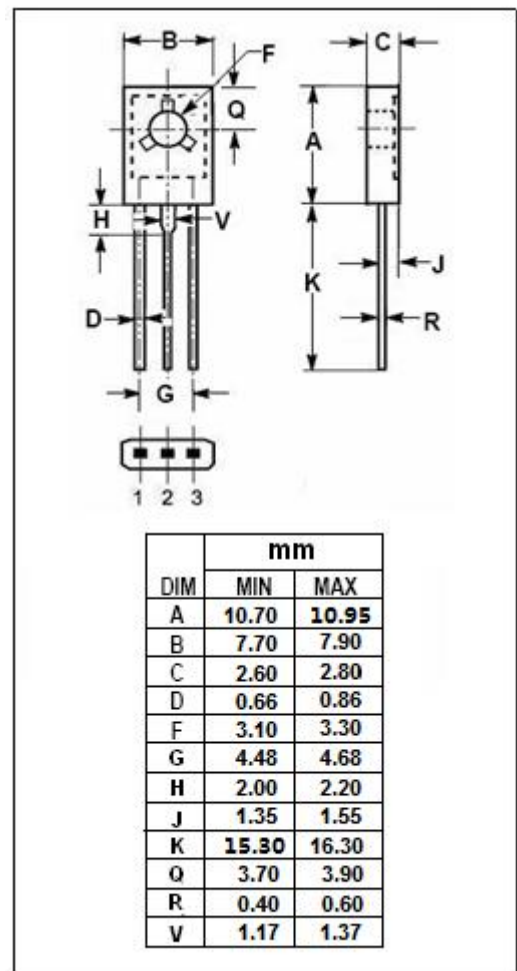
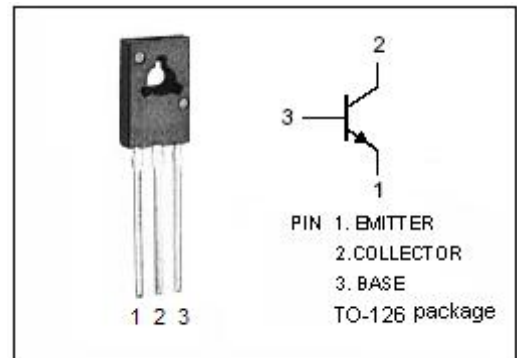
- DC Current Gain-
: $h_{FE} = 40(\text{Min}) @ I_C = 0.15\text{A}$
- Complement to Type BD234/236/238
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

APPLICATIONS

- Designed for use in 5~10 watt audio amplifiers and drivers utilizing complementary or quasi complementary circuits.

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

SYMBOL	PARAMETER	VALUE	UNIT	
V_{CBO}	Collector-Base Voltage	BD233	45	V
		BD235	60	
		BD237	100	
V_{CEO}	Collector-Emitter Voltage	BD233	45	V
		BD235	60	
		BD237	80	
V_{CER}	Collector-Emitter Voltage($R_{BE} = 1k\Omega$)	BD233	45	V
		BD235	60	
		BD237	100	
V_{EBO}	Emitter-Base Voltage	5	V	
I_C	Collector Current-Continuous	2	A	
I_{CM}	Collector Current-Peak	6	A	
I_B	Base Current-Continuous	0.5	A	
P_C	Collector Power Dissipation @ $T_C = 25^\circ\text{C}$	25	W	
T_J	Junction Temperature	150	$^\circ\text{C}$	
T_{stg}	Storage Temperature Range	-65~150	$^\circ\text{C}$	



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THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-c}$	Thermal Resistance, Junction to Case	5	$^{\circ}C/W$
$R_{th\ j-a}$	Thermal Resistance, Junction to Ambient	100	$^{\circ}C/W$

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage	BD233	$I_C= 50mA ; I_B=0$			V
		BD235				
		BD237				
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C= 1.0A; I_B= 0.1A$			0.6	V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C= 1.0A; V_{CE}= 2V$			1.3	V
I_{CBO}	Collector Cutoff Current	$V_{CB}= V_{CB0max}; I_E= 0$ $V_{CB}= V_{CB0max}; I_E= 0; T_J= 150^{\circ}C$			0.05 1.0	mA
I_{EBO}	Emitter Cutoff Current	$V_{EB}= 5V; I_C= 0$			0.2	mA
h_{FE-1}	DC Current Gain	$I_C= 150mA ; V_{CE}= 2V$	40		250	
h_{FE-2}	DC Current Gain	$I_C= 1.0A ; V_{CE}= 2V$	25			
f_T	Current-Gain—Bandwidth Product	$I_C= 250mA; V_{CE}= 10V, f_{test}= 1.0MHz$	3.0			MHz

Switching Times

t_{on}	Turn-On Time	$I_C= 1.0A; I_{B1}= -I_{B2}= 0.1A$		0.4	1.0	μs
t_{off}	Turn-Off Time			1.5	3.0	μs

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