

isc Silicon NPN Darlington Power Transistor

BDX83/A/B/C

DESCRIPTION

- High DC Current Gain-
: $h_{FE} = 1000(\text{Min}) @ I_C = 5A$
- Collector-Emitter Sustaining Voltage-
: $V_{CEO(SUS)} = 45V(\text{Min})$ - BDX83; $60V(\text{Min})$ - BDX83A
80V(Min)- BDX83B; $100V(\text{Min})$ - BDX83C
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

APPLICATIONS

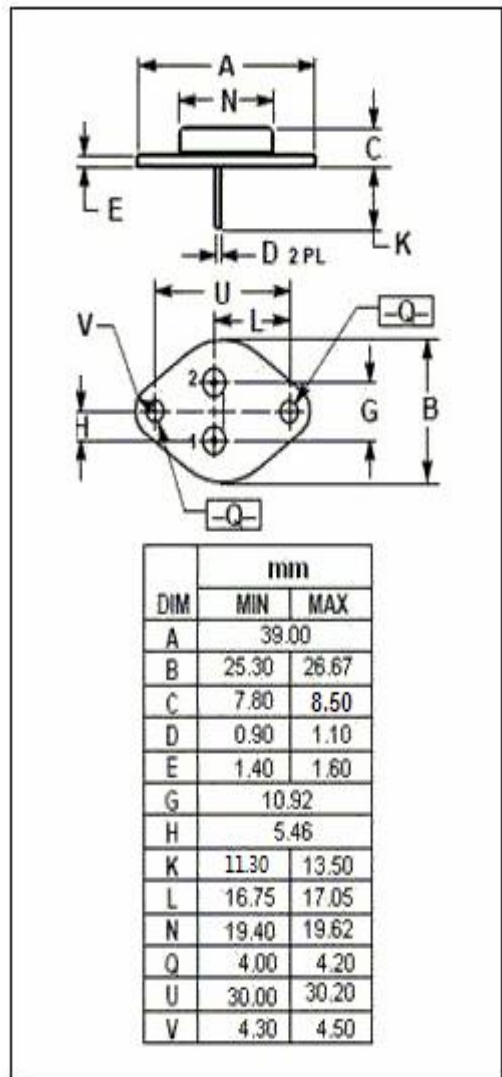
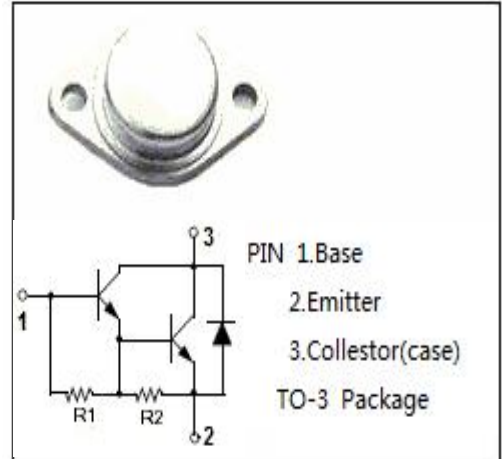
- Power switching
- Hammer drivers
- Series and shunt regulators
- Audio amplifiers

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	BDX83	45
		BDX83A	60
		BDX83B	80
		BDX83C	100
V_{CEO}	Collector-Emitter Voltage	BDX83	45
		BDX83A	60
		BDX83B	80
		BDX83C	100
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current-Continuous	10	A
I_{CM}	Collector Current-Peak	15	A
I_B	Base Current	250	mA
P_C	Collector Power Dissipation @ $T_C = 25^\circ\text{C}$	125	W
T_J	Junction Temperature	200	$^\circ\text{C}$
T_{stg}	Storage Temperature Range	-65~200	$^\circ\text{C}$

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th j-c}$	Thermal Resistance, Junction to Case	1.4	$^\circ\text{C/W}$



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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	BDX83	$I_C=50\text{mA}; I_B=0$	45			V
		BDX83A		60			
		BDX83B		80			
		BDX83C		100			
$V_{CE(sat)}$	Collector-Emitter Voltage	Saturation	$I_C=5\text{A}; I_B=10\text{mA}$			2.0	V
$V_{BE(on)-1}$	Base-Emitter On Voltage		$I_C=5\text{A}; V_{CE}=3\text{V}$			2.8	V
$V_{BE(on)-2}$	Base-Emitter On Voltage		$I_C=10\text{A}; V_{CE}=3\text{V}$			4.5	V
I_{CEV}	Collector Cutoff Current	BDX83	$V_{CE}=45\text{V}; V_{BE}=-1.5\text{V}$ $V_{CE}=45\text{V}; V_{BE}=-1.5\text{V}; T_C=150^{\circ}\text{C}$			0.5 3.0	mA
		BDX83A	$V_{CE}=60\text{V}; V_{BE}=-1.5\text{V}$ $V_{CE}=60\text{V}; V_{BE}=-1.5\text{V}; T_C=150^{\circ}\text{C}$			0.5 3.0	
		BDX83B	$V_{CE}=80\text{V}; V_{BE}=-1.5\text{V}$ $V_{CE}=80\text{V}; V_{BE}=-1.5\text{V}; T_C=150^{\circ}\text{C}$			0.5 3.0	
		BDX83C	$V_{CE}=100\text{V}; V_{BE}=-1.5\text{V}$ $V_{CE}=100\text{V}; V_{BE}=-1.5\text{V}; T_C=150^{\circ}\text{C}$			0.5 3.0	
I_{CEO}	Collector Cutoff Current	BDX83	$V_{CE}=20\text{V}; I_B=0$			1.0	mA
		BDX83A	$V_{CE}=30\text{V}; I_B=0$				
		BDX83B	$V_{CE}=40\text{V}; I_B=0$				
		BDX83C	$V_{CE}=50\text{V}; I_B=0$				
I_{EBO}	Emitter Cutoff Current		$V_{EB}=5\text{V}; I_C=0$			5.0	mA
h_{FE-1}	DC Current Gain		$I_C=1\text{A}; V_{CE}=3\text{V}$	750			
h_{FE-2}	DC Current Gain		$I_C=5\text{A}; V_{CE}=3\text{V}$	1000			
h_{FE-3}	DC Current Gain		$I_C=10\text{A}; V_{CE}=3\text{V}$	250			

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