

**isc Silicon NPN Darlington Power Transistor**
**BDX65/A/B/C**
**DESCRIPTION**

- Collector Current  $-I_C = 12A$
- High DC Current Gain  $-h_{FE} = 1000(\text{Min}) @ I_C = 5A$
- Complement to Type BDX64/A/B/C
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

**APPLICATIONS**

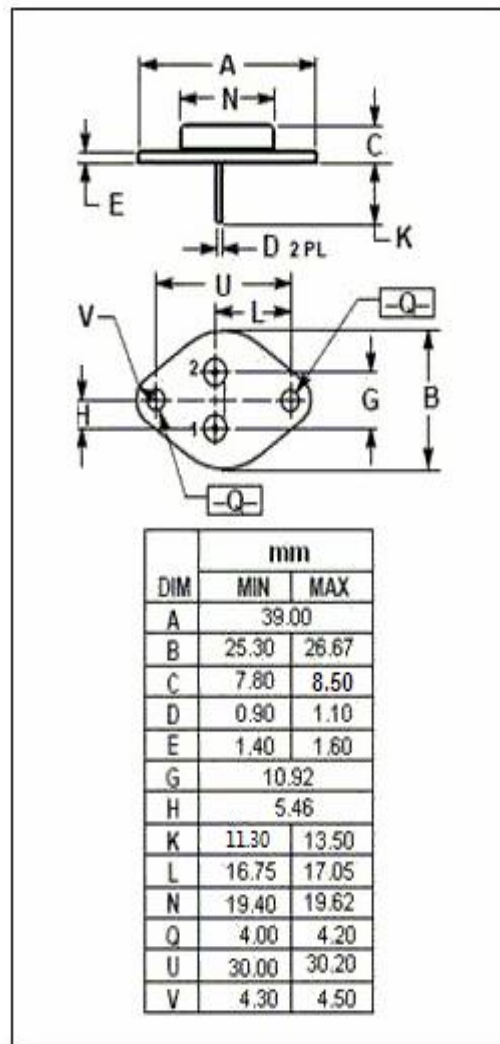
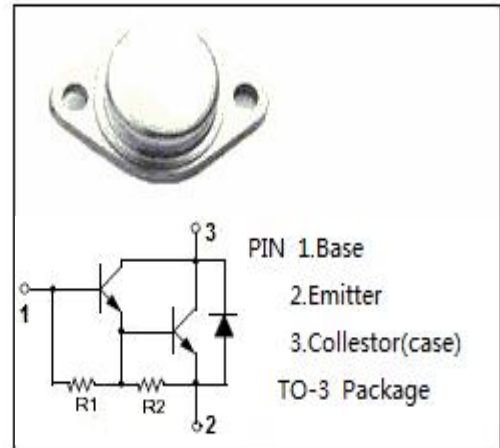
- Designed for audio output stages and general amplifier and switching applications

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

SYMBOL	PARAMETER	VALUE	UNIT	
$V_{CBO}$	Collector-Base Voltage	BDX65	80	V
		BDX65A	100	
		BDX65B	120	
		BDX65C	140	
$V_{CEO}$	Collector-Emitter Voltage	BDX65	60	V
		BDX65A	80	
		BDX65B	100	
		BDX65C	120	
$V_{EBO}$	Emitter-Base Voltage	5	V	
$I_C$	Collector Current-Continuous	12	A	
$I_{CM}$	Collector Current-Peak	16	A	
$I_B$	Base Current-Continuous	0.2	A	
$P_C$	Collector Power Dissipation @ $T_c = 25^\circ\text{C}$	117	W	
$T_J$	Junction Temperature	200	$^\circ\text{C}$	
$T_{stg}$	Storage Temperature Range	-55~200	$^\circ\text{C}$	

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-c}$	Thermal Resistance, Junction to Case	1.5	$^\circ\text{C/W}$



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**ELECTRICAL CHARACTERISTICS**

 T<sub>C</sub>=25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT	
V <sub>CEO(SUS)</sub>	Collector-Emitter Sustaining Voltage	I <sub>C</sub> = 50mA ; I <sub>B</sub> =0	BDX65	60			V
			BDX65A	80			
			BDX65B	100			
			BDX65C	120			
V <sub>CE(sat)</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 5A; I <sub>B</sub> = 20mA			2	V	
V <sub>BE(on)</sub>	Base-Emitter On Voltage	I <sub>C</sub> = 5A ; V <sub>CE</sub> = 3V			2.5	V	
V <sub>ECF</sub>	C-E Diode Forward Voltage	I <sub>F</sub> = 5A		1.2		V	
I <sub>CEO</sub>	Collector Cutoff Current	V <sub>CE</sub> = 1/2V <sub>CEOmax</sub> ; I <sub>B</sub> = 0			0.2	mA	
I <sub>CBO</sub>	Collector Cutoff Current	V <sub>CB</sub> = V <sub>CEOmax</sub> ; I <sub>E</sub> = 0 V <sub>CB</sub> = 1/2V <sub>CB0max</sub> ; I <sub>E</sub> = 0; T <sub>J</sub> = 200°C			0.4 3	mA	
I <sub>EBO</sub>	Emitter Cutoff Current	V <sub>EB</sub> = 5V; I <sub>C</sub> =0			5	mA	
h <sub>FE-1</sub>	DC Current Gain	I <sub>C</sub> = 1A ; V <sub>CE</sub> = 3V		1500			
h <sub>FE-2</sub>	DC Current Gain	I <sub>C</sub> = 5A ; V <sub>CE</sub> = 3V	1000				
h <sub>FE-3</sub>	DC Current Gain	I <sub>C</sub> = 10A ; V <sub>CE</sub> = 3V		1500			
f <sub>T</sub>	Current-Gain—Bandwidth Product	I <sub>C</sub> =5A ; V <sub>CE</sub> = 3V		7		MHz	
Switching times							
t <sub>on</sub>	Turn-on Time	I <sub>C</sub> = 5A; I <sub>B1</sub> = -I <sub>B2</sub> = 20mA		1		μs	
t <sub>off</sub>	Turn-off Time			6		μs	

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