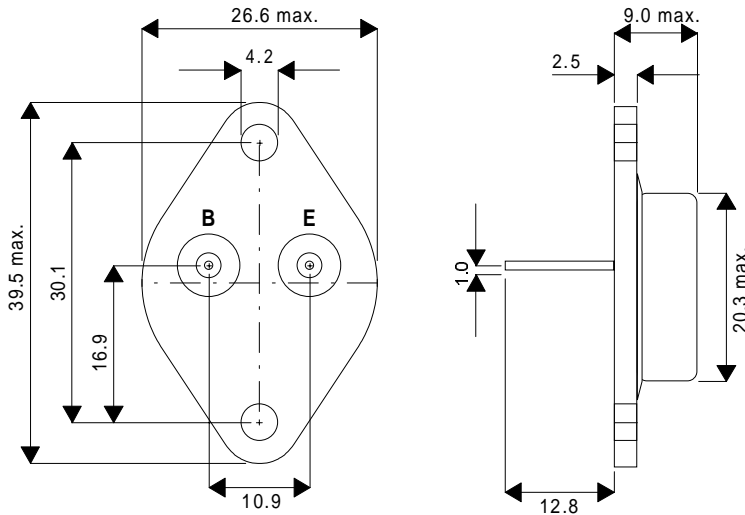


**MECHANICAL DATA**  
 Dimensions in mm



**TO3 Package.**  
 Case is collector.

**NPN**  
**DARLINGTON**  
**POWER**  
**TRANSISTOR**

**NPN Darlington transistors for audio output stages and general amplifier and switching applications.**

**PNP complements are:**  
**BDX68, BDX68A, BDX68B, BDX68C.**

**ABSOLUTE MAXIMUM RATINGS**

( $T_{case} = 25^{\circ}C$  unless otherwise stated)

		BDX 69	BDX 69A	BDX 69B	BDX 69C
$V_{CBO}$	Collector – Base Voltage (Open Emitter)	80V	100V	120V	140V
$V_{CEO}$	Collector – Emitter Voltage (Open Base)	60V	80V	100V	120V
$V_{EBO}$	Emitter – Base Voltage (Open Collector)	5V	5V	5V	5V
$I_C$	Collector Current	25A			
$I_{CM}$	Collector Current (Peak)	40A			
$I_B$	Base Current	500mA			
$P_{tot}$	Total Power Dissipation at $T_{MB} = 25^{\circ}C$	200W			
$T_J$	Maximum Junction Temperature	200°C			
$T_{STG}$	Storage Junction Temperature	-65 to 200°C			
$R_{\theta J-MB}$	Thermal Resistance, Junction to Mounting Base.	0.875°C / W			

**ELECTRICAL CHARACTERISTICS** ( $T_J = 25^\circ\text{C}$ , unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Units
$I_{CBO}$ Collector Cut-off Current	$I_E = 0$ $V_{CB} = V_{CBOmax}$			2	mA
	$I_E = 0$ $V_{CB} = \frac{1}{2}V_{CBOmax}$ $T_J = 200^\circ\text{C}$			10	
$I_{CEO}$ Collector Cut-off Current	$I_B = 0$ $V_{CE} = \frac{1}{2}V_{CEOmax}$			6	mA
$I_{EBO}$ Emitter Cut-off Current	$I_C = 0$ $V_{EB} = 5V$			10	mA
$h_{FE}^*$ D.C. Current Gain	$I_C = 5A$ $V_{CE} = 3V$		3000		—
	$I_C = 20A$ $V_{CE} = 3V$	1000			
	$I_C = 30A$ $V_{CE} = 3V$		4000		
$V_{BE}^*$ Base – Emitter Voltage	$I_C = 20A$ $V_{CE} = 3V$			2.5	V
$V_{CEsat}^*$ Collector – Emitter Saturation Voltage	$I_C = 20A$ $I_B = 80mA$			2	V
$C_C$ Collector Capacitance	$I_E = I_e = 0$ $V_{CB} = 10V$ $f = 1MHz$		600		pF
$f_{hfe}$ Cut-off Frequency	$I_C = 10A$ $V_{CE} = 3V$		50		kHz
$ h_{fe} $ Small Signal Current Gain	$I_C = 10A$ $V_{CE} = 3V$ $f = 1MHz$		20		—
$V_F$ Diode, Forward Voltage	$I_F = 20A$		2.5		V
$t_{on}$ Turn-on Time	$I_{Con} = 20A$		1		$\mu\text{s}$
$t_{off}$ Turn-off Time	$I_{Bon} = -I_{Boff} = 80mA$		3.5		

\* Pulse Test:  $t_p < 300\mu\text{s}$ ,  $\delta < 2\%$