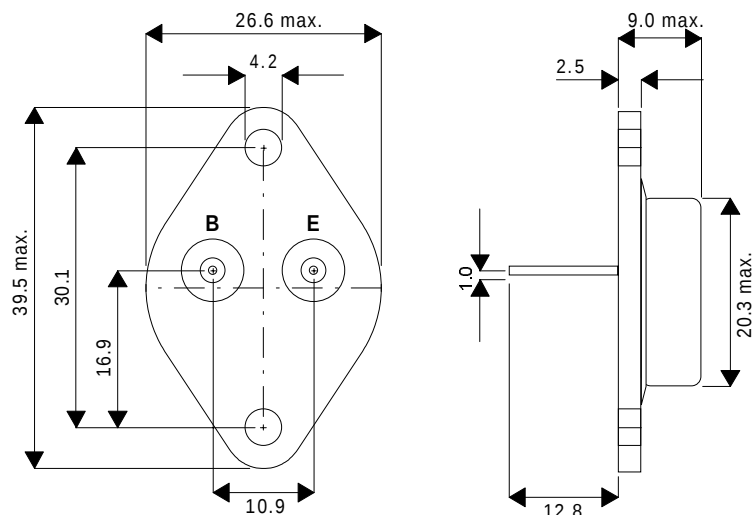


MECHANICAL DATA

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.

100% Screening Option Available ④

PNP complements are:

BDX68, BDX68A, BDX68B, BDX68C.

ABSOLUTE MAXIMUM RATINGS

($T_{\text{case}} = 25^{\circ}\text{C}$ 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 $T_{\text{MB}} = 25^{\circ}\text{C}$	200W			
T_{J}	Maximum Junction Temperature	200°C			
T_{STG}	Storage Junction Temperature	-65 to 200°C			
		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	$I_E = 0$ $V_{CB} = V_{CBOmax}$ ① ③			2	mA
	$I_E = 0$ $V_{CB} = \frac{1}{2}V_{CBOmax}$ $T_J = 150^\circ\text{C}$			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	$I_C = 0$ $V_{EB} = 5V$ ①			10	mA
h_{FE}^* D.C. Current Gain	$I_C = 5A$ $V_{CE} = 3V$		3000		—
	$I_C = 20A$ $V_{CE} = 3V$ ① ③	1000			
	$I_C = 30A$ $V_{CE} = 3V$		4000		
V_{BE}^* Base – Emitter Voltage	$I_C = 20A$ $V_{CE} = 3V$ ②			2.5	V
V_{CEsat}^* Collector – Emitter Saturation Voltage	$I_C = 20A$ $I_B = 80mA$ ②			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		μs
t_{off} Turn-off Time	$I_{Bon} = -I_{Boff} = 80mA$		3.5		

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

Notes

- ① Performance Verified as Sub Group A2 Tests.
- ② Performance Verified as Sub Group A3 Tests.
- ③ Post Test End Points for Sub Group B8.

See SEMELAB Specification :
 QR208 – Generic “near equivalent” CECC 50000
 SEMELAB product conformance specification.

- ④ 100% Screening may also be included.

See SEMELAB Specification :
 QR209 – Application of CECC 50000 Appendix VI
 Screening Procedure to SEMELAB “in house
 specified” products.