



BDX65 – A – B – C

NPN SILICON DARLINGTON POWER TRANSISTOR

The BDX65, BDX65A, BDX65B and BDX65C are mounted in TO-3 metal package.
High current power darlington designed for power amplification and switching applications.
The complementary PNP are BDX64, BDX64A, BDX64B, BDX64C.
Compliance to RoHS.

ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings		Value	Unit
V_{CEO}	Collector-Emitter Voltage	BDX65	60	V
		BDX65A	80	
		BDX65B	100	
		BDX65C	120	
V_{CBO}	Collector-Base Voltage	BDX65	80	V
		BDX65A	100	
		BDX65B	120	
		BDX65C	140	
V_{EBO}	Emitter-Base Voltage		5.0	V
I_C	Collector Current	$I_{C(RMS)}$	12	A
		I_{CM}	16	
I_B	Base Current		0.2	A
P_T	Power Dissipation	@ $T_C = 25^\circ$	117	W
T_J	Junction Temperature		-55 to +200	$^\circ\text{C}$
T_S	Storage Temperature			

THERMAL CHARACTERISTICS

Symbol	Ratings		Value	Unit
R_{thJ-C}	Thermal Resistance, Junction to Case		1.5	$^\circ\text{C/W}$

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ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

Symbol	Ratings	Test Condition(s)		Min	Typ	Max	Unit
$V_{CEO(SUS)}$	Collector-Emitter Breakdown Voltage (*)	$I_C=0.1\text{ A}$ $I_B=0$ $L=25\text{mH}$	BDX65	60	-	-	V
			BDX65A	80	-	-	
			BDX65B	100	-	-	
			BDX65C	120	-	-	
I_{CEO}	Collector Cutoff Current	$V_{CE}=30\text{ V}$	BDX65	-	-	1	mA
		$V_{CE}=40\text{ V}$	BDX65A	-	-		
		$V_{CE}=50\text{ V}$	BDX65B	-	-		
		$V_{CE}=60\text{ V}$	BDX65C	-	-		
I_{EBO}	Emitter Cutoff Current	$V_{BE}=5\text{ V}$	BDX65	-	-	5.0	mA
			BDX65A				
			BDX65B				
			BDX65C				
I_{CBO}	Collector-Base Cutoff Current	$V_{CBO}=60\text{ V}$	BDX65	-	-	0.4	-
		$V_{CBO}=40\text{ V}$ $T_{CASE}=200^\circ\text{C}$		-	-	3	
		$V_{CBO}=50\text{ V}$	BDX65A	-	-	0.4	
		$V_{CBO}=80\text{ V}$ $T_{CASE}=200^\circ\text{C}$		-	-	3	
		$V_{CBO}=100\text{ V}$	BDX65B	-	-	0.4	
		$V_{CBO}=60\text{ V}$ $T_{CASE}=200^\circ\text{C}$		-	-	3	
		$V_{CBO}=120\text{ V}$	BDX65C	-	-	0.4	
		$V_{CBO}=70\text{ V}$ $T_{CASE}=200^\circ$		-	-	3	
$V_{CE(SAT)}$	Collector-Emitter saturation Voltage (*)	$I_C=5.0\text{ A}$ $I_B=20\text{ mA}$	BDX65	-	-	2	V
			BDX65A				
			BDX65B				
			BDX65C				
V_F	Forward Voltage (pulse method)	$I_F=3\text{ A}$	BDX65	-	1.8	-	V
			BDX65A				
			BDX65B				
			BDX65C				
V_{BE}	Base-Emitter Voltage (*)	$I_C=5.0\text{ A}$ $V_{CE}=3\text{ V}$	BDX65	-	-	2.5	V
			BDX65A				
			BDX65B				
			BDX65C				

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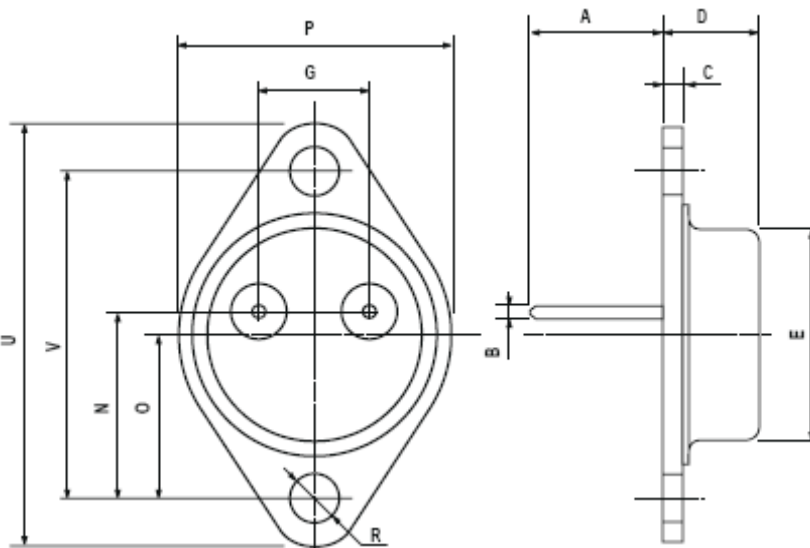
Symbol	Ratings	Test Condition(s)		Min	Typ	Max	Unit
f_{hfe}	Cut-off frequency	$V_{CE}=3\text{ V}$ $I_C=5\text{ A}$	BDX65	-	50	-	kHz
			BDX65A				
			BDX65B				
			BDX65C				
f_T	Transition Frequency	$V_{CE}=3\text{ V}$ $I_C=5\text{ A}$ $f=1\text{ MHz}$	BDX65	-	7	-	MHz
			BDX65A				
			BDX65B				
			BDX65C				
h_{FE}	D.C. current gain (*)	$V_{CE}=3\text{ V}$ $I_C=1\text{ A}$	BDX65	-	3300	-	-
			BDX65A				
			BDX65B				
			BDX65C				
		$V_{CE}=3\text{ V}$ $I_C=5\text{ A}$	BDX65	1000	-	-	
			BDX65A				
			BDX65B				
			BDX65C				
		$V_{CE}=3\text{ V}$ $I_C=10\text{ A}$	BDX65	-	3700	-	
			BDX65A				
			BDX65B				
			BDX65C				

(*) Pulse Width $\approx 300\text{ }\mu\text{s}$, Duty Cycle $\angle 2.0\%$

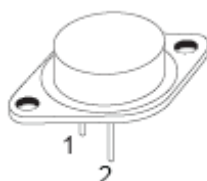
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MECHANICAL DATA CASE TO-3

DIMENSIONS (mm)		
	min	max
A	11	13.10
B	0.97	1.15
C	1.5	1.65
D	8.32	8.92
F	19	20
G	10.70	11.1
N	16.50	17.20
P	25	26
R	4	4.09
U	38.50	39.30
V	30	30.30



Pin 1 :	Base
Pin 2 :	Emitter
Case :	Collector



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