

## BDX65 – A – B – C

### NPN SILICON DARLINGTON POWER TRANSISTOR

The BDX65, BDX65A, BDX65 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	°C
$T_S$	Storage Temperature			

#### THERMAL CHARACTERISTICS

Symbol	Ratings		Value	Unit
$R_{thJ-C}$	Thermal Resistance, Junction to Case		1.5	°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	$V_{CE}=30\text{ V}$ $V_{CE}=40\text{ V}$ $V_{CE}=50\text{ V}$ $V_{CE}=60\text{ V}$	BDX65	-	-	1	mA
			BDX65A	-	-		
			BDX65B	-	-		
			BDX65C	-	-		
$I_{EBO}$	Emitter Cutoff Current	$V_{BE}=5\text{ V}$	BDX65	-	-	5.0	mA
			BDX65A				
			BDX65B				
			BDX65C				
$I_{CBO}$	Collector-Base Cutoff Current	$V_{CBO}=60\text{ V}$ $V_{CBO}=40\text{ V}$ $T_{CASE}=200^\circ\text{C}$ $V_{CBO}=50\text{ V}$ $V_{CBO}=80\text{ V}$ $T_{CASE}=200^\circ\text{C}$ $V_{CBO}=100\text{ V}$ $V_{CBO}=60\text{ V}$ $T_{CASE}=200^\circ\text{C}$ $V_{CBO}=120\text{ V}$ $V_{CBO}=70\text{ V}$ $T_{CASE}=200^\circ$	BDX65	-	-	0.4	-
			BDX65	-	-	3	
			BDX65A	-	-	0.4	
			BDX65A	-	-	3	
			BDX65B	-	-	0.4	
			BDX65B	-	-	3	
			BDX65C	-	-	0.4	
			BDX65C	-	-	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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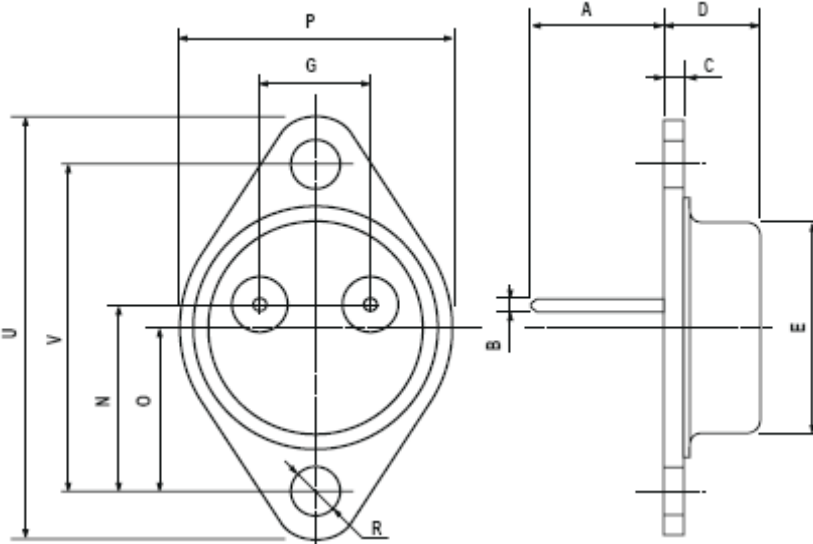
Symbol	Ratings	Test Condition(s)		Min	Typ	Max	Unit
$f_{hfe}$	Cut-off frequency	$V_{CE}=3\text{ V}$ $I_C=5\text{ A}$	BDX65	-	50	-	kHz
			BDX65A				
			BDX65B				
			BDX65C				
$f_T$	Transition Frequency	$V_{CE}=3\text{ V}$ $I_C=5\text{ A}$ $f=1\text{ MHz}$	BDX65	-	7	-	MHz
			BDX65A				
			BDX65B				
			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  $\approx 300\ \mu\text{s}$ , Duty Cycle  $\angle 2.0\%$

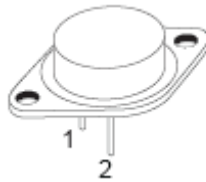
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### MECHANICAL DATA CASE TO-3

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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