

## BDT65-A-B-C

### SILICON DARLINGTON POWER TRANSISTORS

NPN epitaxial-base transistors in a monolithic Darlington circuit and housed in a TO-220 envelope. They are intended for output stages in audio equipment, general amplifiers, and analogue switching application.

PNP complements are BDT64-A-B-C

Compliance to RoHS.

#### ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings	Value	Unit	
$V_{CBO}$	Collector-Base Voltage	BDT65	60	V
		BDT65A	80	
		BDT65B	100	
		BDT65C	120	
$V_{CEO}$	Collector-Emitter Voltage	BDT65	60	V
		BDT65A	80	
		BDT65B	100	
		BDT65C	120	
$V_{EBO}$	Emitter-Base Voltage	BDT65	5	V
		BDT65A		
		BDT65B		
		BDT65C		
$I_c$	Collector Current	BDT65	12	A
		BDT65A		
		BDT65B		
		BDT65C		
$I_{CM}$	Collector Peak Current	BDT65	20	A
		BDT65A		
		BDT65B		
		BDT65C		

## BDT65-A-B-C

### ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings		Value	Unit
$I_B$	Base Current		500	mA
		BDT65		
		BDT65A		
		BDT65B		
$P_T$	Power Dissipation	@ $T_{mb} < 25^\circ$	125	Watts
		BDT65		
		BDT65A		
		BDT65B		
$T_J$	Junction Temperature		150	$^\circ\text{C}$
		BDT65		
		BDT65A		
		BDT65B		
$T_s$	Storage Temperature range		-65 to +150	
		BDT65		
		BDT65A		
		BDT65B		
		BDT65C		

Limiting values in accordance with the Absolute Maximum System (IEC 134)

### THERMAL CHARACTERISTICS

Symbol	Ratings	Value	Unit
$R_{thj-c}$	Thermal Resistance, Junction to Case	1	$^\circ\text{C}/\text{W}$

## BDT65-A-B-C

### ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit	
$I_{CBO}$	Collector Cutoff Current	$I_E = 0$ $V_{CB} = V_{CBOmax}$	BDT65	-	-	0.4	mA
			BDT65A				
			BDT65B				
			BDT65C				
		$I_E = 0$ $V_{CB} = 1/2 V_{CBOmax}$ $T_J = 150\text{ }^\circ\text{C}$	BDT65	-	-	2	mA
			BDT65A				
			BDT65B				
			BDT65C				
$I_{CEO}$	Collector Cutoff Current	$I_E = 0$ $V_{CE} = 1/2 V_{CEOmax}$	BDT65	-	-	0.2	mA
			BDT65A				
			BDT65B				
			BDT65C				
$I_{EBO}$	Emitter Cutoff Current	$V_{EB} = 5\text{ V}$ $I_C = 0$	BDT65	-	-	5	mA
			BDT65A				
			BDT65B				
			BDT65C				
$V_{CEO}$	Collector-Emitter Breakdown Voltage	$I_C = 30\text{ mA}$ $I_B = 0$	BDT65	60	-	-	V
			BDT65A	80	-	-	
			BDT65B	100	-	-	
			BDT65C	120	-	-	
$V_{CE(SAT)}$	Collector-Emitter saturation Voltage (*)	$I_C = 5\text{ A}$ $I_B = 20\text{ mA}$	BDT65	-	-	2	V
			BDT65A				
			BDT65B				
			BDT65C				
		$I_C = 10\text{ A}$ $I_B = 100\text{ mA}$	BDT65	-	-	3	
			BDT65A				
			BDT65B				
			BDT65C				

## BDT65-A-B-C

### ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

Symbol	Ratings			Min	Typ	Max	Unit
$V_{BE(on)}$	Base-Emitter Voltage (*)	$I_C = 5\text{ A}, V_{CE} = 4\text{ V}$	BDT65	-	-	2.5	V
			BDT65A				
			BDT65B				
			BDT65C				
$V_{ECF}$	C-E Diode Forward Voltage	$I_F = 5\text{ A}$	BDT65	-	-	2	V
			BDT65A				
			BDT65B				
			BDT65C				
		$I_F = 12\text{ A}$	BDT65	-	2	-	
			BDT65A				
			BDT65B				
			BDT65C				
$h_{FE}$	DC Current Gain (*)	$V_{CE} = 4\text{ V}, I_C = 1\text{ A}$	BDT65	-	1500	-	-
			BDT65A				
			BDT65B				
			BDT65C				
		$V_{CE} = 4\text{ V}, I_C = 5\text{ A}$	BDT65	1000	-	-	
			BDT65A				
			BDT65B				
			BDT65C				
		$V_{CE} = 4\text{ V}, I_C = 12\text{ A}$	BDT65	-	1000	-	
			BDT65A				
			BDT65B				
			BDT65C				
$C_{OB}$	Output Capacitance	$I_E = 0, V_{CB} = 10\text{ V}$ $f_{test} = 1\text{ MHz}$	BDT65	-	200	-	pF
			BDT65A				
			BDT65B				
			BDT65C				

### SWITCHING TIMES

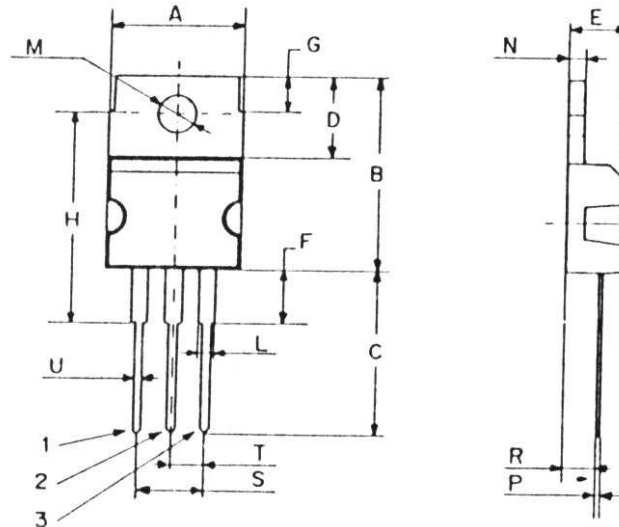
Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit
$t_{on}$	turn-on time	$I_C = 5\text{ A}, V_{CC} = 30\text{ V}$ $I_{B1} = -I_{B2} = 20\text{ mA}$	-	1	2.5	$\mu\text{s}$
$t_{off}$	turn-off time		-	6	10	

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

## BDT65-A-B-C

### MECHANICAL DATA CASE TO-220

DIMENSIONS (mm)		
	Min.	Max.
A	9,90	10,30
B	15,65	15,90
C	13,20	13,40
D	6,45	6,65
E	4,30	4,50
F	2,70	3,15
G	2,60	3,00
H	15,75	17,15
L	1,15	1,40
M	3,50	3,70
N	-	1,37
P	0,46	0,55
R	2,50	2,70
S	4,98	5,08
T	2,49	2,54
U	0,70	0,90



Pin 1 :	Base
Pin 2 :	Collector
Pin 3 :	Emitter
Package	Collector

Revised August 2012

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