

## BD743 – A – B – C

### SILICON POWER TRANSISTORS

The BD743 series are NPN power transistors in a TO-220 envelope.  
 They are intended for use in power linear and switching application.  
 High current capability and high power dissipation.  
 PNP complements are BD744-A-B-C  
 Compliance to RoHS.

#### ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings	Value	Unit	
$V_{CBO}$	Collector-Base Voltage ( $I_E=0$ )	BD743	50	V
		BD743A	70	
		BD743B	900	
		BD743C	110	
$V_{CEO}$	Collector-Emitter Voltage ( $I_B=0$ )	BD743	45	V
		BD743A	60	
		BD743B	80	
		BD743C	100	
$V_{EBO}$	Emitter-Base Voltage ( $I_C=0$ )	BD743	5	V
		BD743A		
		BD743B		
		BD743C		
$I_C$	Collector Current	BD743	15	A
		BD743A		
		BD743B		
		BD743C		
$I_{CM}$	Collector Peak Current	BD743	20	A
		BD743A		
		BD743B		
		BD743C		
$I_B$	Base Current	BD743	5	A
		BD743A		
		BD743B		
		BD743C		
$P_T$	Power Dissipation	$T_C = 25^\circ C$	90	W
		$T_A = 25^\circ C$	2	
$T_J$	Junction Temperature		150	°C
$T_s$	Storage Temperature range		-65 to +150	

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### THERMAL CHARACTERISTICS

Symbol	Ratings	Value	Unit
$R_{thJ-MB}$	Junction To Case Thermal Resistance	1.4	°C/W
$R_{thJ-A}$	Junction To Free Air Thermal Resistance	62.5	°C/W

### ELECTRICAL CHARACTERISTICS

$T_C=25^\circ\text{C}$  unless otherwise noted

Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit					
$I_{CBO}$	Collector Cutoff Current	$V_{BE}=0$ $V_{CB}=50\text{ V}$	$T_C=25^\circ\text{C}$	-	-	0.1	mA				
		$V_{BE}=0$ $V_{CB}=70\text{ V}$						BD743			
		$V_{BE}=0$ $V_{CB}=90\text{ V}$						BD743A			
		$V_{BE}=0$ $V_{CB}=100\text{ V}$						BD743B			
		$V_{BE}=0$ $V_{CB}=100\text{ V}$	BD743C	$T_C=125^\circ\text{C}$	-	-	5	mA			
		$V_{BE}=0$ $V_{CB}=50\text{ V}$	BD743								
		$V_{BE}=0$ $V_{CB}=70\text{ V}$	BD743A								
		$V_{BE}=0$ $V_{CB}=90\text{ V}$	BD743B								
		$V_{BE}=0$ $V_{CB}=100\text{ V}$	BD743C								
		$I_{CEO}$	Collector Cutoff Current	$I_B=0$ $V_{CE}=30\text{ V}$	$I_B=0$ $V_{CE}=60\text{ V}$	-	-	0.1	mA		
$I_B=0$ $V_{CE}=60\text{ V}$	BD743										
$I_B=0$ $V_{CE}=60\text{ V}$	BD743A										
$I_B=0$ $V_{CE}=60\text{ V}$	BD743B										
$I_{EBO}$	Emitter Cutoff Current	$V_{EB}=5\text{ V}, I_C=0$		-	-	0.5	mA				
								BD743			
								BD743A			
								BD743B			
$V_{CEO}$	Collector-Emitter Breakdown Voltage (*)	$I_C=30\text{ mA}, I_B=0$					V				
								BD743	45	-	-
								BD743A	60	-	-
								BD743B	80	-	-
			BD743C	100	-	-					

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### ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

Symbol	Ratings			Value			Unit
				Min	Typ	Max	
$V_{CE(SAT)}$	Collector-Emitter saturation Voltage (*)	$I_C = 5\text{ A}, I_B = 500\text{ mA}$	BD743	-	-	1	V
			BD743A				
			BD743B				
			BD743C				
		$I_C = 15\text{ A}, I_B = 5\text{ A}$	BD743	-	-	3	
			BD743A				
			BD743B				
			BD743C				
$V_{BE(on)}$	Base-Emitter Voltage (*)	$I_C = 5\text{ A}, V_{CE} = 4\text{ V}$	BD743	-	-	1	V
			BD743A				
			BD743B				
			BD743C				
		$I_C = 15\text{ A}, V_{CE} = 4\text{ V}$	BD743	-	-	3	
			BD743A				
			BD743B				
			BD743C				
$h_{FE}$	DC Current Gain (*)	$I_C = 1\text{ A}, V_{CE} = 4\text{ V}$	BD743	40	-	-	-
			BD743A				
			BD743B				
			BD743C				
		$I_C = 5\text{ A}, V_{CE} = 4\text{ V}$	BD743	20	-	150	
			BD743A				
			BD743B				
			BD743C				
		$I_C = 15\text{ A}, V_{CE} = 4\text{ V}$	BD743	5	-	-	
			BD743A				
			BD743B				
			BD743C				

### SWITCHING TIMES

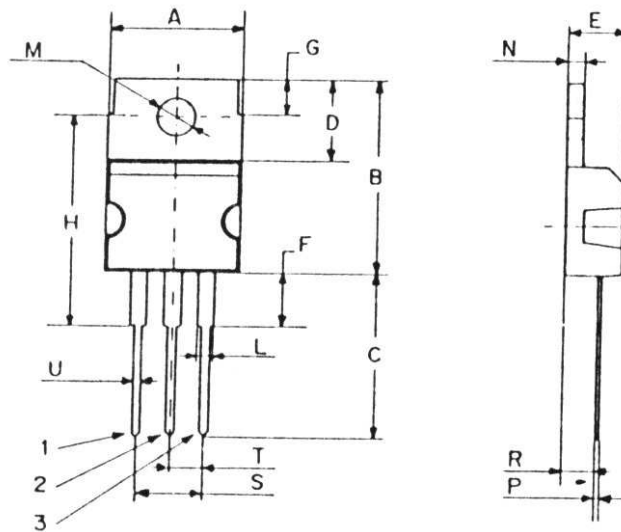
Symbol	Ratings	Test Condition(s)	Value			Unit
			Min	Typ	Max	
$t_d$	Delay time	$I_C = 5\text{ A}, V_{be} = -4.2\text{ V}$ $I_{B(on)} = -I_{B(off)} = 0.5\text{ A}$ $R_L = 6\ \Omega, t_p = 20\ \mu\text{s}$	-	20	-	ns
$t_r$	Rise time		-	350	-	
$t_s$	Storage time		-	500	-	
$t_f$	Fall time		-	400	-	

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

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### 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

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