

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

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ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

Symbol	Ratings			Value			Unit
$V_{CE(SAT)}$	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	V
			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

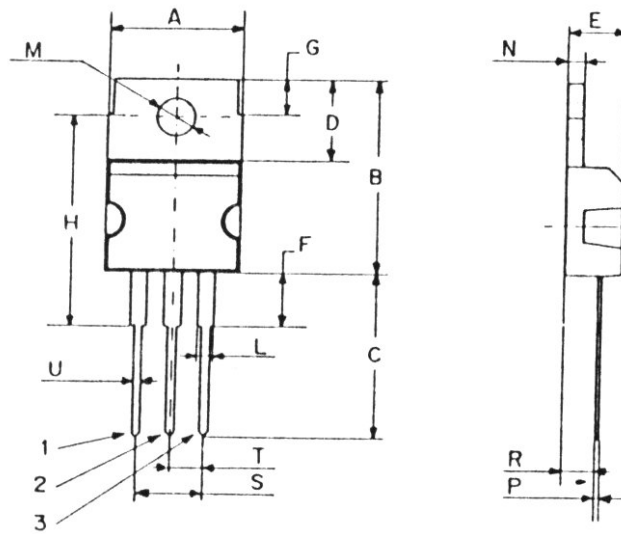
Symbol	Ratings	Test Condition(s)	Value			Unit
			Min	Typ	Max	
t_d	Delay time	$I_C = 5\text{ A}, V_{be} = -4.2\text{ V}$ $I_{B(on)} = -I_{B(off)} = 0.5\text{ A}$ $R_L = 6\ \Omega, t_p = 20\mu\text{s}$	-	20	-	ns
t_r	Rise time		-	350	-	
t_s	Storage time		-	500	-	
t_f	Fall time		-	400	-	

(*) 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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