NPN BDT81 – BDT83 – BDT85 – BDT87

SILICON POWER TRANSISTORS

The BDT81 – BDT83 – BDT85 – BDT87 are epitaxial base transistors in a TO-220 plastic envelope.
They are intended for use in audio output stages and general amplifier and switching appications.
PNP complements are BDT82 – BDT84 – BDT86 – BDT88.
Compliance to RoHS.

ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings			Value	Unit
V_{CEO}	Collector-Emitter Voltage	I_B = 0	BDT81	60	V
			BDT83	80	
			BDT85	100	
			BDT87	120	
V_{CBO}	Collector-Base Voltage	I_E = 0	BDT81	60	V
			BDT83	80	
			BDT85	100	
			BDT87	120	
V_{EBO}	Emitter-Base Voltage	I_C = 0		7	V
I_C	Collector Current			15	A
I_{CM}	Collector Peak Current			20	A
I_B	Base Current			4	A
P_t	Total Power Dissipation	@ TC = 25°		125	W
T_J	Junction Temperature			150	°C
T_{Stg}	Storage Temperature			-65 to +150	°C

THERMAL CHARACTERISTICS

Symbol	Ratings	Value	Unit
R_{thJa}	Thermal Resistance, Junction to Ambient	70	K/W
R_{thJmb}	Thermal Resistance, Junction to Mounting Base	1	K/W

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ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

Symbol	Ratings	Test Condition(s)		Min	Typ	Max	Unit
I_{CB0}	Collector Cutoff Current	I_E=0A, V_{CB} = 60 V	BDT81	-	-	0.2	mA
		I_E=0A, V_{CB} = 80 V	BDT83				
		I_E=0A, V_{CB} = 100 V	BDT85				
		I_E=0A, V_{CB} = 120 V	BDT87				
I_{CES}	Collector Cutoff Current	V_{BE}=0, V_{CE} = 60V	BDT81	-	-	1	mA
		V_{BE}=0, V_{CE} = 80V	BDT83				
		V_{BE}=0, V_{CE} = 100V	BDT85				
		V_{BE}=0, V_{CE} = 120V	BDT87				
I_{EBO}	Emitter Cutoff Current	V_{EB}= 7 V I_C=0	BDT81	-	-	0.1	mA
			BDT83				
			BDT85				
			BDT87				
h_{FE}	DC Current Gain (*)	I_C= 50mA V_{CE}= 10V	BDT81	40	-	-	-
			BDT83				
			BDT85				
			BDT87				
		I_C= 5A V_{CE}= 4V	BDT81	40	-	-	
			BDT83				
			BDT85				
			BDT87				
$V_{CE(SAT)}$	Collector-Emitter Saturation Voltage (*)	I_C= 5A I_B= 0.5A	BDT81	-	-	1	V
			BDT83				
			BDT85				
			BDT87				
		I_C= 7A I_B= 0.7A	BDT81	-	-	1.6	
			BDT83				
			BDT85				
			BDT87				
V_{BE}	Base-Emitter Voltage (*)	I_C= 4A V_{CE}= 4 V	BDT81	-	-	1.5	V
			BDT83				
			BDT85				
			BDT87				

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ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

Symbol	Ratings	Test Condition(s)Sec	Min	Typ	Max	Unit
$I_{S/B}$	Second breakdown collector current	V_{CE}= 50 V, t_P = 100 ms	2.5	-	-	A
f_T	Transition frequency	V_{CE}= 10 V, I_C= 0.5 A, f=1 MHz	-	20	-	MHz
t_{on}	Turn-on time	I_C= -7 A I_{B1} = -I_{B2} = 0.7 A	-	-	1	µs
T_{off}	Turn-off time		-	-	2	

(*) Pulse Duration = 300 µs, δ <= 2%

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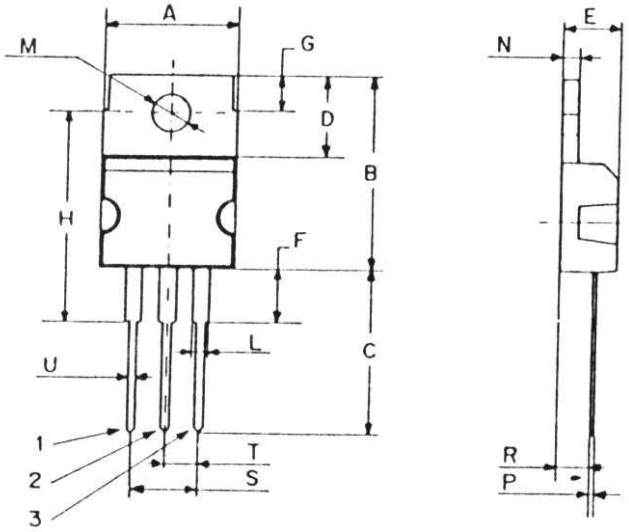
MECHANICAL DATA CASE TO-220

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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