



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 applications.

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	@ $TC = 25^\circ$	125	W	
T_J	Junction Temperature		150	$^\circ C$	
T_{Stg}	Storage Temperature		-65 to +150	$^\circ C$	

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



NPN BDT81 – BDT83 – BDT85 – BDT87

ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

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



NPN BDT81 – BDT83 – BDT85 – BDT87

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	$V_{CE} = 50 \text{ V}$, $t_P = 100 \text{ ms}$	2.5	-	-	A
f_T	Transition frequency	$V_{CE} = 10 \text{ V}$, $I_C = 0.5 \text{ A}$, $f = 1 \text{ MHz}$	-	20	-	MHz
t_{on}	Turn-on time	$I_C = -7 \text{ A}$	-	-	1	μs
T_{off}	Turn-off time	$I_{B1} = -I_{B2} = 0.7 \text{ A}$	-	-	2	

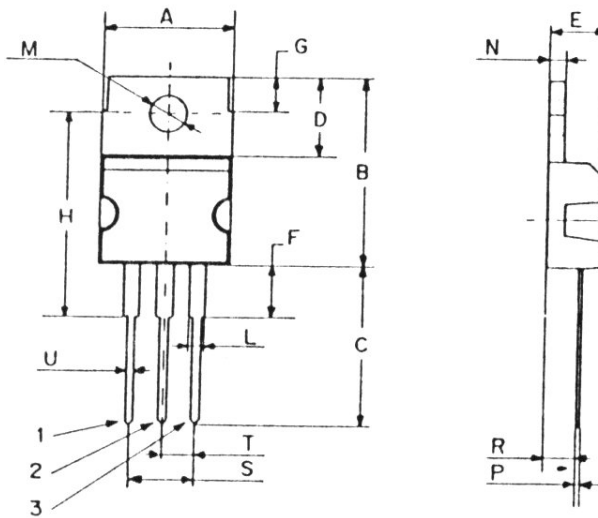
(*) Pulse Duration = 300 μs , $\delta \leq 2\%$



NPN BDT81 – BDT83 – BDT85 – BDT87

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 October 2012

Information furnished is believed to be accurate and reliable. However, Comset Semiconductors assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may results from its use. Data are subject to change without notice. Comset Semiconductors makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Comset Semiconductors assume any liability arising out of the application or use of any product and specifically disclaims any and all liability, including without limitation consequential or incidental damages. Comset Semiconductors' products are not authorized for use as critical components in life support devices or systems.