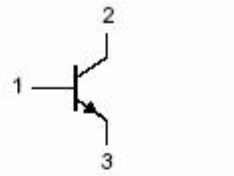
isc Silicon NPN Power Transistors — BDT81/83/85/87

DESCRIPTION

- DC Current Gain -h_{FE} = 40(Min)@ I_C= 5A
- Collector-Emitter Sustaining Voltage-
  : $V_{CEO(SUS)}$ = 60V(Min)- BDT81; 80V(Min)- BDT83;
  100V(Min)- BDT85; 120V(Min)- BDT87
- Complement to Type BDT82/84/86/88
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

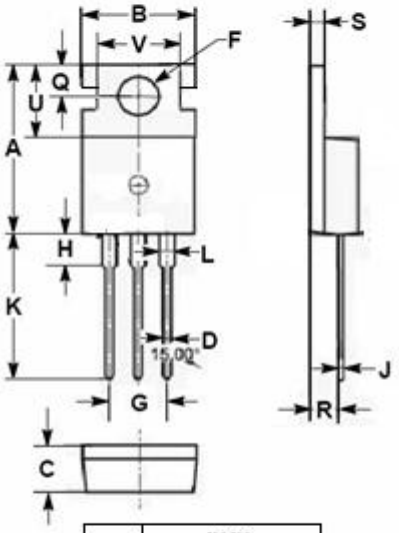
1 2 3



PIN 1. BASE
2.COLLECTOR
3. EMITTER
TO-220C package

APPLICATIONS

- Designed for use in audio output stages and general amplifer and switching applications



DIM	mm MIN	MAX
A	15.50	15.90
B	9.80	10.20
C	4.20	4.50
D	0.70	0.90
F	3.40	3.70
G	4.98	5.18
H	2.68	2.90
J	0.44	0.60
K	12.80	13.40
L	1.20	1.45
Q	2.70	2.90
R	2.30	2.70
S	1.29	1.35
U	6.45	6.65
V	8.66	8.86

ABSOLUTE MAXIMUM RATINGS(T_a=25℃)

SYMBOL	PARAMETER		VALUE	UNIT
V_{CBO}	Collector-Base Voltage	BDT81	60	V
		BDT83	80	
		BDT85	100	
		BDT87	120	
V_{CEO}	Collector-Emitter Voltage	BDT81	60	V
		BDT83	80	
		BDT85	100	
		BDT87	120	
V_{EBO}	Emitter-Base Voltage		7	V
I_C	Collector Current-Continuous		15	A
I_{CM}	Collector Current-Peak		20	A
I_B	Base Current		4	A
P_C	Collector Power Dissipation T_C=25℃		125	W
T_j	Junction Temperature		150	℃
T_{stg}	Storage Temperature Range		-65~150	℃

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j\text{-}c}$	Thermal Resistance,Junction to Case	1	℃/W
$R_{th\ j\text{-}a}$	Thermal Resistance,Junction to Ambient	70	℃/W

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ELECTRICAL CHARACTERISTICS

T_C=25℃ unless otherwise specified

SYMBOL	PARAMETER		CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage	BDT81	I_C= 30mA; I_B= 0	60			V
		BDT83		80			
		BDT85		100			
		BDT87		120			
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage		I_C= 5A; I_B= 0.5A			1.0	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage		I_C= 7A; I_B= 0.7A			1.6	V
$V_{BE(on)}$	Base-Emitter On Voltage		I_C= 5A ; V_{CE}= 4V			1.5	V
I_{CES}	Collector Cutoff Current		V_{CE}= V_{CBOmax}; V_{BE}= 0			1	mA
I_{CBO}	Collector Cutoff Current		V_{CB}= V_{CBOmax}; I_E= 0			0.2	mA
I_{EBO}	Emitter Cutoff Current		V_{EB}= 7V; I_C= 0			0.1	mA
h_{FE-1}	DC Current Gain		I_C= 50mA ; V_{CE}= 10V	40			
h_{FE-2}	DC Current Gain		I_C= 5A ; V_{CE}= 4V	40			
f_T	Current-Gain—Bandwidth Product		I_C= 0.5A ; V_{CE}= 10V		10		MHz
Switching Times							
t_{on}	Turn-On Time		I_C= 7A; I_{B1}= -I_{B2}= 0.7A			1	μs
t_{off}	Turn-Off Time					2	μs

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