

Silicon NPN Darlington Power Transistor

BDT65/A/B/C

DESCRIPTION

- Collector Current $-I_C = 12A$
- High DC Current Gain $-h_{FE} = 1000(\text{Min}) @ I_C = 5A$
- Complement to Type BDT64/A/B/C

APPLICATIONS

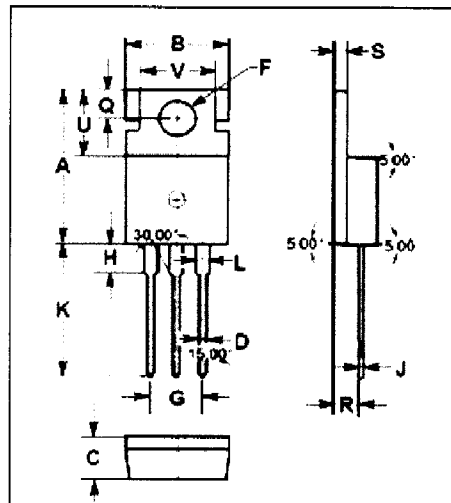
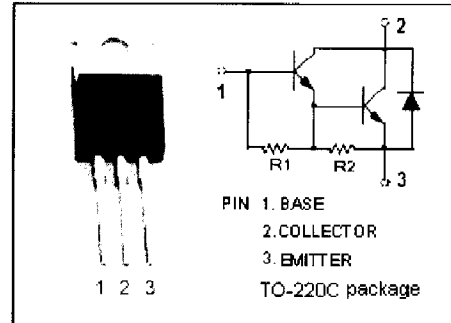
- Designed for audio output stages and general purpose amplifier applications

ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

SYMBOL	PARAMETER	VALUE	UNIT	
V_{CER}	Collector-Emitter Voltage	BDT65	60	V
		BDT65A	80	
		BDT65B	100	
		BDT65C	120	
V_{CEO}	Collector-Emitter Voltage	BDT65	60	V
		BDT65A	80	
		BDT65B	100	
		BDT65C	120	
V_{EBO}	Emitter-Base Voltage	5	V	
I_C	Collector Current-Continuous	12	A	
I_{CM}	Collector Current-Peak	20	A	
I_B	Base Current-Continuous	0.5	A	
P_C	Collector Power Dissipation @ $T_C = 25^\circ\text{C}$	125	W	
T_J	Junction Temperature	150	$^\circ\text{C}$	
T_{stg}	Storage Temperature Range	-65~150	$^\circ\text{C}$	

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-c}$	Thermal Resistance, Junction to Case	1	$^\circ\text{C/W}$



DIM	mm	
	MIN	MAX
A	15.70	15.90
B	9.90	10.10
C	4.20	4.40
D	0.70	0.90
F	3.40	3.60
G	4.98	5.18
H	2.70	2.90
J	0.44	0.46
K	13.20	13.40
L	1.10	1.30
Q	2.70	2.90
R	2.50	2.70
S	1.29	1.31
U	6.45	6.65
V	8.66	8.86

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ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT	
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	$I_C=30\text{mA}; I_B=0$	BDT65	60			V
			BDT65A	80			
			BDT65B	100			
			BDT65C	120			
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage	$I_C=5\text{A}; I_B=20\text{mA}$			2.0	V	
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage	$I_C=10\text{A}; I_B=100\text{mA}$			3.0	V	
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C=5\text{A}; V_{CE}=4\text{V}$			2.5	V	
V_{ECF-1}	C-E Diode Forward Voltage	$I_F=5\text{A}$			2.0	V	
V_{ECF-2}	C-E Diode Forward Voltage	$I_F=12\text{A}$		2.0		V	
I_{CEO}	Collector Cutoff Current	$V_{CE}=\frac{1}{2}V_{CE0max}; I_B=0$			0.2	mA	
I_{CBO}	Collector Cutoff Current	$V_{CB}=V_{CB0max}; I_E=0$ $V_{CB}=\frac{1}{2}V_{CB0max}; I_E=0; T_C=150^\circ\text{C}$			0.4 2.0	mA	
I_{EBO}	Emitter Cutoff Current	$V_{EB}=5\text{V}; I_C=0$			5	mA	
h_{FE-1}	DC Current Gain	$I_C=1\text{A}; V_{CE}=4\text{V}$		1500			
h_{FE-2}	DC Current Gain	$I_C=5\text{A}; V_{CE}=4\text{V}$	1000				
h_{FE-3}	DC Current Gain	$I_C=12\text{A}; V_{CE}=4\text{V}$		1000			
C_{OB}	Output Capacitance	$I_E=0; V_{CB}=10\text{V}; f_{test}=1\text{MHz}$		200		pF	

Switching times

t_{on}	Turn-On Time	$I_C=5\text{A}; I_{B1}=-I_{B2}=20\text{mA}; V_{CC}=30\text{V}$		1	2.5	μs
t_{off}	Turn-Off Time			6.0	10	μs