

isc Silicon NPN Darlington Power Transistor

BDT65F/AF/BF/CF

DESCRIPTION

- Collector Current $-I_C = 12A$
- High DC Current Gain $-h_{FE} = 1000(\text{Min}) @ I_C = 5A$
- Complement to Type BDT64F/AF/BF/CF

APPLICATIONS

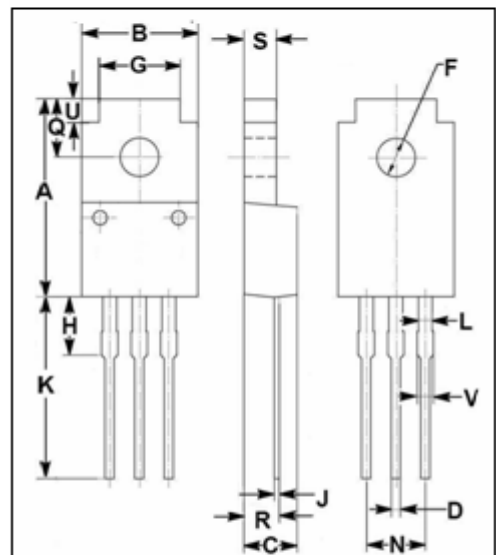
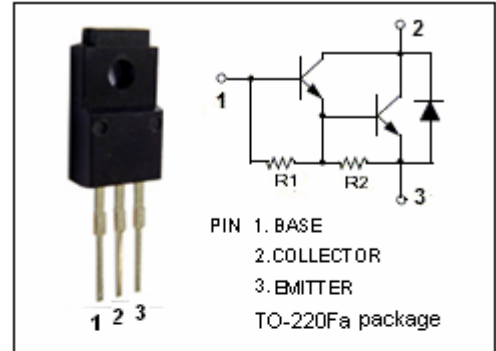
- Designed for audio output stages and general purpose amplifier applications

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

SYMBOL	PARAMETER	VALUE	UNIT	
V_{CER}	Collector-Emitter Voltage	BDT65F	60	V
		BDT65AF	80	
		BDT65BF	100	
		BDT65CF	120	
V_{CEO}	Collector-Emitter Voltage	BDT65F	60	V
		BDT65AF	80	
		BDT65BF	100	
		BDT65CF	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 @ $T_C = 25^\circ\text{C}$	39	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	5.7	$^\circ\text{C/W}$



DIM	mm	
	MIN	MAX
A	16.85	17.15
B	9.90	10.10
C	4.35	4.65
D	0.75	0.80
F	3.20	3.40
G	6.90	7.10
H	5.15	5.45
J	0.45	0.75
K	13.35	13.65
L	1.10	1.30
N	4.98	5.18
Q	4.85	5.15
R	2.95	3.25
S	2.70	2.90
U	1.75	2.05
V	1.30	1.50

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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	$I_C=30\text{mA}; I_B=0$	60			V
			80			
			100			
			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}	C-E Diode Forward Voltage	$I_F=5\text{A}$			2.0	V
I_{CEO}	Collector Cutoff Current	$V_{CE}=\frac{1}{2}V_{CE0max}; I_B=0$			1	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	mA
					2.0	
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	$I_C=12\text{A}; V_{CE}=4\text{V}$		1500		
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	10	μs