

Silicon PNP Power Transistors

BDT42F/AF/BF/CF

DESCRIPTION

- DC Current Gain $-h_{FE} = 30(\text{Min}) @ I_C = -0.3\text{A}$
- Collector-Emitter Sustaining Voltage-
 : $V_{CEO(\text{SUS})} = -40\text{V}(\text{Min})$ - BDT42F; $-60\text{V}(\text{Min})$ - BDT42AF
 $-80\text{V}(\text{Min})$ - BDT42BF; $-100\text{V}(\text{Min})$ - BDT42CF
- Complement to Type BDT41F/AF/BF/CF

APPLICATIONS

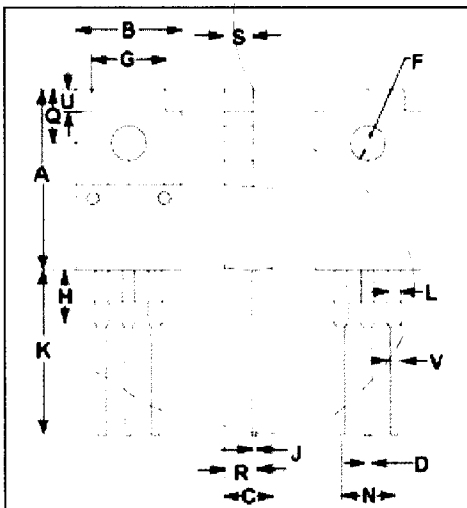
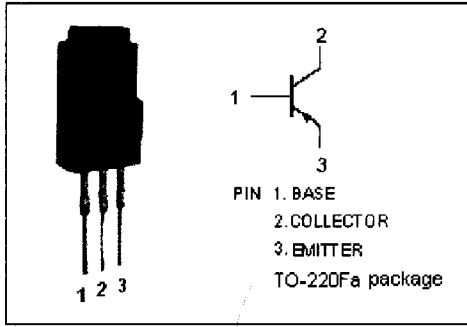
- Designed for use in general purpose amplifier and switching applications

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

SYMBOL	PARAMETER	VALUE	UNIT	
V_{CBO}	Collector-Base Voltage	BDT42F	-80	V
		BDT42AF	-100	
		BDT42BF	-120	
		BDT42CF	-140	
V_{CEO}	Collector-Emitter Voltage	BDT42F	-40	V
		BDT42AF	-60	
		BDT42BF	-80	
		BDT42CF	-100	
V_{EBO}	Emitter-Base Voltage	-5	V	
I_C	Collector Current-Continuous	-6	A	
I_{CM}	Collector Current-Peak	-10	A	
I_B	Base Current	-3	A	
P_C	Collector Power Dissipation $T_C=25^\circ\text{C}$	32	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	6.3	$^\circ\text{C/W}$



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	
$V_{CE(SUS)}$	Collector-Emitter Sustaining Voltage	BDT42F	-40			V	
		BDT42AF	-60				
		BDT42BF	-80				
		BDT42CF	-100				
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = -6A; I_B = -0.6A$			-1.5	V	
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C = -6A; V_{CE} = -4V$			-2.0	V	
I_{CES}	Collector Cutoff Current	$V_{CE} = V_{CE0max}; V_{BE} = 0$			-0.4	mA	
I_{CEO}	Collector Cutoff Current	BDT42F/AF	$V_{CE} = -30V; I_B = 0$			-0.2	mA
		BDT42BF/CF	$V_{CE} = -60V; I_B = 0$				
I_{EBO}	Emitter Cutoff Current	$V_{EB} = -5V; I_C = 0$			-0.5	mA	
h_{FE-1}	DC Current Gain	$I_C = -0.3A; V_{CE} = -4V$	30				
h_{FE-2}	DC Current Gain	$I_C = -3A; V_{CE} = -4V$	15		75		
f_T	Current-Gain—Bandwidth Product	$I_C = -0.5A; V_{CE} = -10V$	3			MHz	

Switching Times

t_{on}	Turn-On Time	$I_C = -6A; I_{B1} = -I_{B2} = -0.6A$		0.6		μs
t_{off}	Turn-Off Time			1.0		μs