

**Silicon PNP Power Transistors**

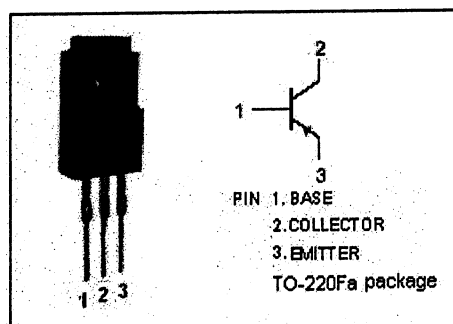
**BDT42F/AF/BF/CF**

**DESCRIPTION**

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

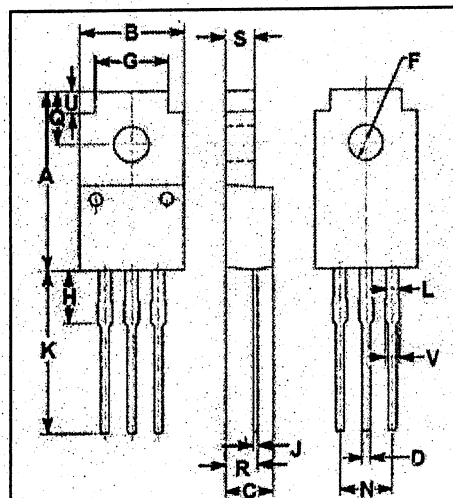
**APPLICATIONS**

- 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	$^\circ\text{C}$	



DIM	mm	
	MIN	MAX
A	16.85	17.15
B	9.54	10.10
C	4.35	4.65
D	0.75	0.90
F	3.20	3.40
G	6.90	7.20
H	3.80	4.20
J	0.45	0.75
K	13.35	13.80
L	1.10	1.30
N	4.98	5.18
Q	4.85	5.15
R	2.55	3.25
S	2.70	2.90
U	1.75	2.05
V	1.30	1.50

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	MAX	UNIT
$R_{th-jc}$	Thermal Resistance, Junction to Case	6.3	$^\circ\text{C/W}$

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**BDT42F/AF/BF/CF**

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

**Switching Times**

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