

INCHANGE Semiconductor

isc Product Specification

isc 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

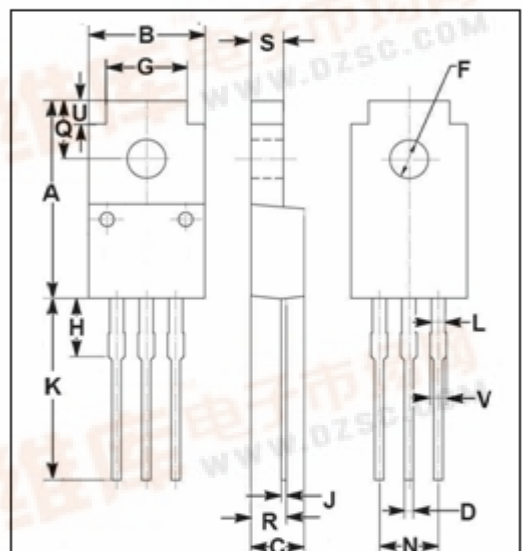
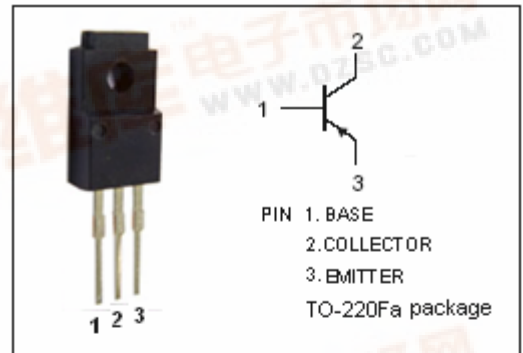
- Designed for use in general purpose amplifier and switching applications

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	BDT42F	-80
		BDT42AF	-100
		BDT42BF	-120
		BDT42CF	-140
V_{CEO}	Collector-Emitter Voltage	BDT42F	-40
		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
$V_{CEO(SUS)}$	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		$V_{CE} = V_{CEOmax}; V_{BE} = 0$			-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		μs
t_{off}	Turn-Off Time			1.0		μs