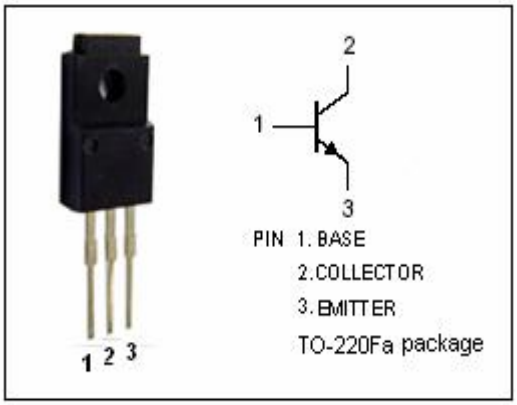
isc Silicon NPN Power Transistors BDT31F/AF/BF/CF/DF

DESCRIPTION

- DC Current Gain -h_{FE} = 25(Min)@ I_C= 1.0A
- Collector-Emitter Sustaining Voltage-
  : $V_{CEO(SUS)}$ = 40V(Min)- BDT31F; 60V(Min)- BDT31AF
  80V(Min)- BDT31BF; 100V(Min)- BDT31CF
  120V(Min)- BDT31DF
- Complement to Type BDT32F/AF/BF/CF/DF
- Minimum Lot-to-Lot variations for robust device performance and reliable operation



APPLICATIONS

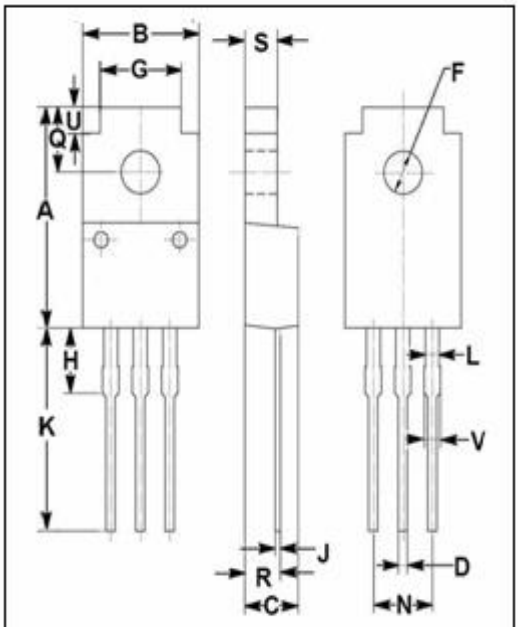
- Designed for use in audio amplifier output stages , general purpose amplifier and high speed switching applications

ABSOLUTE MAXIMUM RATINGS(T_a=25℃)

SYMBOL	PARAMETER		VALUE	UNIT
V_{CBO}	Collector-Base Voltage	BDT31F	80	V
		BDT31AF	100	
		BDT31BF	120	
		BDT31CF	140	
		BDT31DF	160	
V_{CEO}	Collector-Emitter Voltage	BDT31F	40	V
		BDT31AF	60	
		BDT31BF	80	
		BDT31CF	100	
		BDT31DF	120	
V_{EBO}	Emitter-Base Voltage		5	V
I_C	Collector Current-Continuous		3	A
I_{CM}	Collector Current-Peak		5	A
I_B	Base Current		1	A
P_C	Collector Power Dissipation T_C=25℃		22	W
T_j	Junction Temperature		150	℃
T_{stg}	Storage Ttemperature Range		-65~150	℃

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j\text{-}c}$	Thermal Resistance,Junction to Case	8.12	℃/W
$R_{th\ j\text{-}a}$	Thermal Resistance,Junction to Ambient	55	℃/W



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

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ELECTRICAL CHARACTERISTICS

T_C=25℃ unless otherwise specified

SYMBOL	PARAMETER		CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage	BDT31F	I_C= 30mA; I_B= 0	40			V
		BDT31AF		60			
		BDT31BF		80			
		BDT31CF		100			
		BDT31DF		120			
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	BDT31F/AF/BF/CF	I_C= 3A; I_B= 0.375A			1.2	V
		BDT31DF	I_C= 3A; I_B= 0.75A			2.5	
$V_{BE(on)}$	Base-Emitter On Voltage		I_C= 3A ; V_{CE}= 4V			1.8	V
I_{CES}	Collector Cutoff Current		V_{CE}= V_{CEOmax}; V_{BE}= 0			0.2	mA
I_{CEO}	Collector Cutoff Current	BDT31F/AF	V_{CE}= 30V; I_B= 0			0.1	mA
		BDT31BF/CF	V_{CE}= 60V; I_B= 0				
		BDT31DF	V_{CE}= 90V; I_B= 0				
I_{EBO}	Emitter Cutoff Current		V_{EB}= 5V; I_C= 0			0.2	mA
h_{FE-1}	DC Current Gain		I_C=1A ; V_{CE}= 4V	25			
h_{FE-2}	DC Current Gain	BDT31F/AF/BF/CF	I_C= 3A ; V_{CE}= 4V	10		50	
		BDT31DF		5			
f_T	Current-Gain—Bandwidth Product		I_C= 0.5A ; V_{CE}= 10V	3			MHz
Switching Times							
t_{on}	Turn-On Time		I_C= 1.0A; I_{B1}= -I_{B2}= 0.1A		0.3		μs
t_{off}	Turn-Off Time				1.0		μs

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