

isc Silicon NPN Power Transistors

BDT31/A/B/C

DESCRIPTION

- DC Current Gain $-h_{FE} = 25(\text{Min})@ I_C = 1.0\text{A}$
- Collector-Emitter Sustaining Voltage-
: $V_{CEO(\text{SUS})} = 40\text{V}(\text{Min})$ - BDT31; $60\text{V}(\text{Min})$ - BDT31A
80V(Min)- BDT31B; $100\text{V}(\text{Min})$ - BDT31C
- Complement to Type BDT32/A/B/C

APPLICATIONS

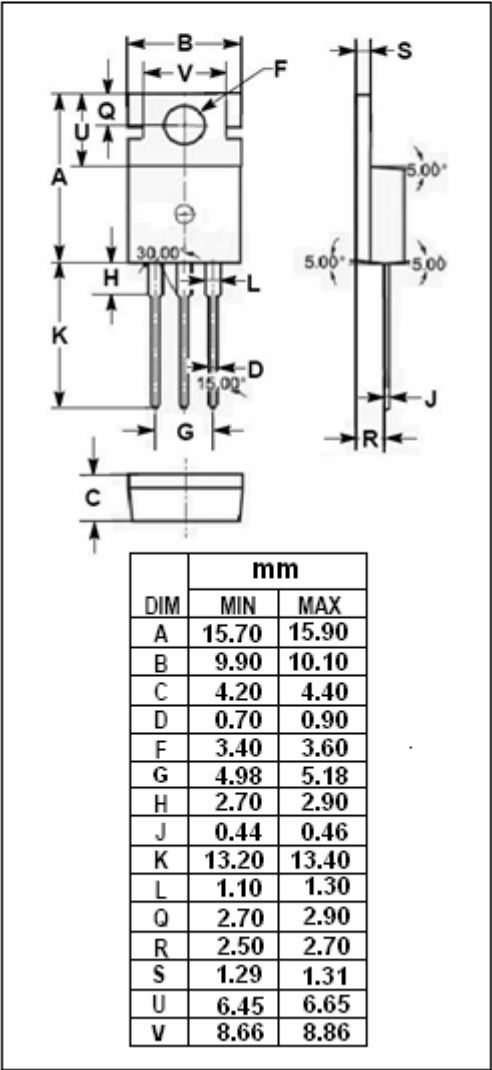
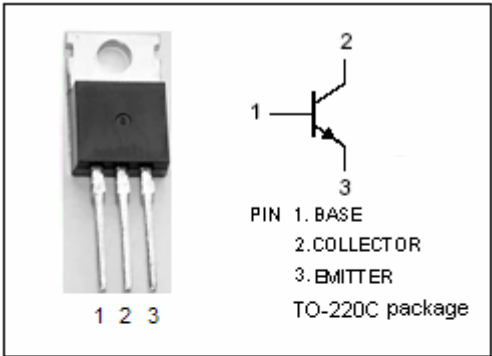
- Designed for use in audio output stages and general amplifier and switching applications.

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

SYMBOL	PARAMETER		VALUE	UNIT
V_{CBO}	Collector-Base Voltage	BDT31	80	V
		BDT 31A	100	
		BDT 31B	120	
		BDT 31C	140	
V_{CEO}	Collector-Emitter Voltage	BDT31	40	V
		BDT 31A	60	
		BDT 31B	80	
		BDT 31C	100	
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 $T_C=25^{\circ}\text{C}$		40	W
T_j	Junction Temperature		150	$^{\circ}\text{C}$
T_{stg}	Storage Ttemperature Range		-65~150	$^{\circ}\text{C}$

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-c}$	Thermal Resistance,Junction to Case	3.12	$^{\circ}\text{C/W}$
$R_{th\ j-a}$	Thermal Resistance,Junction to Ambient	70	$^{\circ}\text{C/W}$



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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	BDT31	$I_C=30\text{mA}; I_B=0$	40			V
		BDT 31A		60			
		BDT 31B		80			
		BDT 31C		100			
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage		$I_C=3\text{A}; I_B=0.375\text{A}$			1.2	V
$V_{BE(on)}$	Base-Emitter On Voltage		$I_C=3\text{A}; V_{CE}=4\text{V}$			1.8	V
I_{CES}	Collector Cutoff Current		$V_{CE}=V_{CEOmax}; V_{BE}=0$			0.2	mA
I_{CEO}	Collector Cutoff Current	BDT31/A	$V_{CE}=30\text{V}; I_B=0$			0.1	mA
		BDT31B/C	$V_{CE}=60\text{V}; I_B=0$				
I_{EBO}	Emitter Cutoff Current		$V_{EB}=5\text{V}; I_C=0$			0.2	mA
h_{FE-1}	DC Current Gain		$I_C=1\text{A}; V_{CE}=4\text{V}$	25			
h_{FE-2}	DC Current Gain		$I_C=3\text{A}; V_{CE}=4\text{V}$	10		50	
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	$I_C=1.0\text{A}; I_{B1}=-I_{B2}=0.1\text{A}$		0.3		μS
t_{off}	Turn-Off Time			1.0		μS