

INCHANGE Semiconductor

isc Product Specification

isc Silicon NPN Power Transistor

BDT91/93/95

DESCRIPTION

- DC Current Gain- $h_{FE} = 20 \sim 200 @ I_C = 4A$
- Collector-Emitter Sustaining Voltage-
: $V_{CEO(SUS)} = 60V(\text{Min})$ - BDT91; $80V(\text{Min})$ - BDT93;
100V(Min)- BDT95
- Complement to Type BDT92/94/96

APPLICATIONS

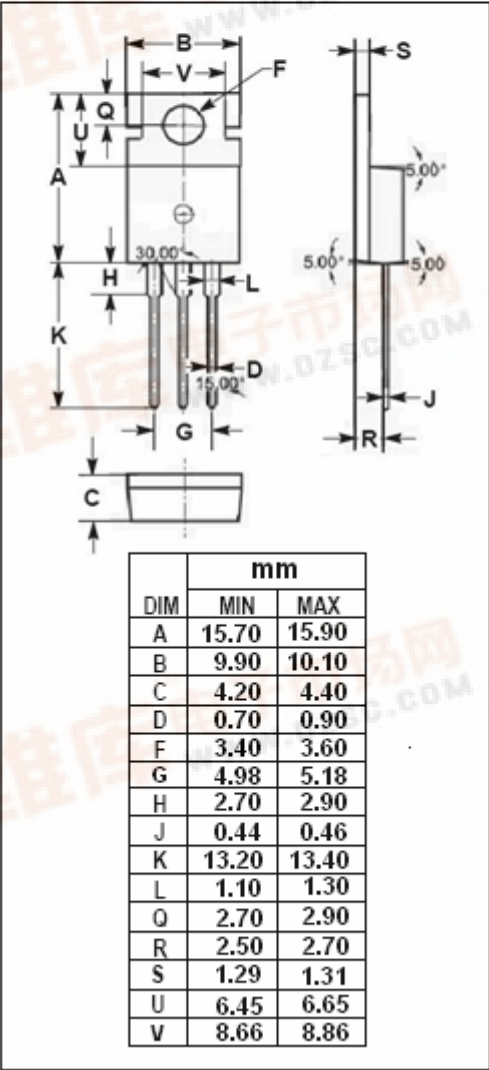
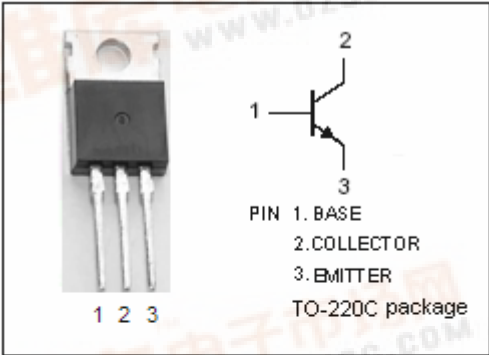
- Designed for use in audio output stages and general amplifier and switching applications.

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

SYMBOL	PARAMETER		VALUE	UNIT
V_{CBO}	Collector-Base Voltage	BDT91	60	V
		BDT93	80	
		BDT95	100	
V_{CEO}	Collector-Emitter Voltage	BDT91	60	V
		BDT93	80	
		BDT95	100	
V_{EBO}	Emitter-Base Voltage		7	V
I_C	Collector Current-Continuous		10	A
I_{CM}	Collector Current-Peak		20	A
I_B	Base Current-Continuous		4	A
P_C	Collector Power Dissipation @ $T_C=25^{\circ}C$		90	W
T_J	Junction Temperature		150	$^{\circ}C$
T_{stg}	Storage Temperature Range		-65~150	$^{\circ}C$

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-c}$	Thermal Resistance, Junction to Case	1.4	$^{\circ}C/W$
$R_{th\ j-a}$	Thermal Resistance, Junction to Ambient	70	$^{\circ}C/W$



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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	BDT91	$I_C=100\text{mA}; I_B=0$	60			V
		BDT93		80			
		BDT95		100			
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage		$I_C=4\text{A}; I_B=0.4\text{A}$			1	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage		$I_C=10\text{A}; I_B=3.3\text{A}$			3	V
$V_{BE(on)}$	Base-Emitter On Voltage		$I_C=4\text{A}; V_{CE}=4\text{V}$			1.6	V
I_{CBO}	Collector Cutoff Current		$V_{CB}=V_{CB0max}; I_E=0$ $V_{CB}=\frac{1}{2}V_{CB0max}; I_E=0, T_J=150^{\circ}\text{C}$			0.1 5	mA
I_{CEO}	Collector Cutoff Current		$V_{CE}=V_{CE0max} \text{ V}; I_B=0$			1	mA
I_{EBO}	Emitter Cutoff Current		$V_{EB}=7\text{V}; I_C=0$			1	mA
h_{FE-1}	DC Current Gain		$I_C=4\text{A}; V_{CE}=4\text{V}$	20		200	
h_{FE-2}	DC Current Gain		$I_C=10\text{A}; V_{CE}=4\text{V}$	5			
f_T	Current-Gain—Bandwidth Product		$I_C=500\text{mA}; V_{CE}=10\text{V}$	4			MHz

Switching times

t_{on}	Turn-On Time	$I_C=4\text{A}; I_{B1}=-I_{B2}=0.4\text{A}$		0.5	1	μs
t_{off}	Turn-Off Time			2	4	μs