

**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**

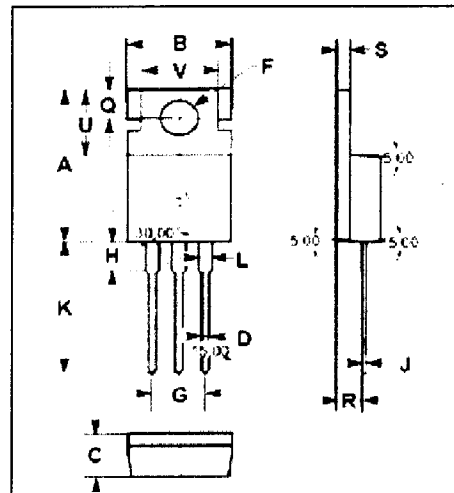
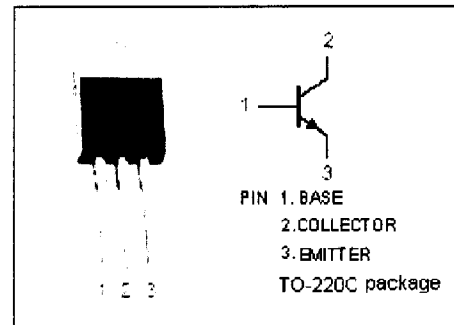
- Designed for use in audio output stages and general amplifier and switching applications.

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

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 @ $T_C=25^\circ\text{C}$	90	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	1.4	$^\circ\text{C/W}$
$R_{th(j-a)}$	Thermal Resistance, Junction to Ambient	70	$^\circ\text{C/W}$



DIM	mm	
	MIN	MAX
A	15.70	15.90
B	9.90	10.10
C	4.20	4.40
D	0.70	0.90
F	3.40	3.60
G	4.98	5.18
H	2.70	2.90
J	0.44	0.46
K	13.20	13.40
L	1.10	1.30
Q	2.70	2.90
R	2.50	2.70
S	1.29	1.31
U	6.45	6.65
V	8.66	8.86



# Silicon NPN Power Transistor

# BDT91/93/95

## 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	BDT91	60			V
		BDT93	80			
		BDT95	100			
		$I_C=100\text{mA}; I_B=0$				
$V_{CE(sat)-1}$	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	$\mu\text{s}$
$t_{off}$	Turn-Off Time			2	4	$\mu\text{s}$