

INCHANGE Semiconductor

isc Product Specification

isc Silicon NPN Power Transistor

BDV91/93/95

DESCRIPTION

- Collector Current $-I_C = 10A$
- Collector-Emitter Sustaining Voltage-
: $V_{CEO(SUS)} = 45V(\text{Min})$ - BDV91; $60V(\text{Min})$ - BDV93
80V(Min)- BDV95
- Complement to Type BDV92/94/96

APPLICATIONS

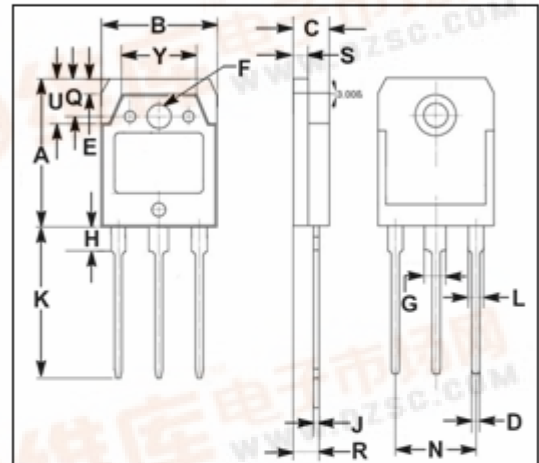
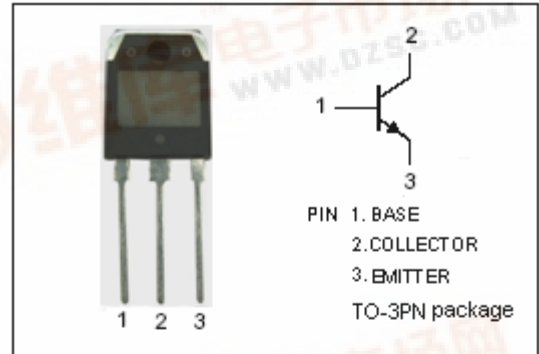
- Designed for use in audio output stages and general amplifier and switching applications

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

SYMBOL	PARAMETER	VALUE	UNIT	
V_{CER}	Collector-Emitter Voltage	BDV91	60	V
		BDV93	80	
		BDV95	100	
V_{CEO}	Collector-Emitter Voltage	BDV91	60	V
		BDV93	80	
		BDV95	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	7	A	
I_E	Emitter Current	14	A	
P_C	Collector Power Dissipation @ $T_C=25^\circ\text{C}$	100	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	1.25	$^\circ\text{C}/\text{W}$



DIM	mm	
	MIN	MAX
A	19.90	20.10
B	15.50	15.70
C	4.70	4.90
D	0.90	1.10
E	1.90	2.10
F	3.40	3.60
G	2.90	3.10
H	3.20	3.40
J	0.595	0.605
K	20.50	20.70
L	1.90	2.10
N	10.89	10.91
Q	4.90	5.10
R	3.35	3.45
S	1.995	2.005
U	5.90	6.10
Y	9.90	10.10



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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	BDV91	$I_C=100\text{mA}; I_B=0$	60			V
		BDV93		80			
		BDV95		100			
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage		$I_C=4\text{A}; I_B=0.4\text{A}$			1.0	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage		$I_C=10\text{A}; I_B=3.3\text{A}$			3.0	V
$V_{BE(sat)}$	Base -Emitter Saturation Voltage		$I_C=4\text{A}; I_B=0.4\text{A}$			1.6	V
$V_{BE(on)}$	Base-Emitter On Voltage		$I_C=4\text{A}; V_{CE}=4\text{V}$			1.6	V
I_{CEO}	Collector Cutoff Current		$V_{CE}=V_{CEOmax}; I_B=0$			0.2	mA
I_{CBO}	Collector Cutoff Current		$V_{CB}=V_{CBOmax}; I_E=0$ $V_{CB}=\frac{1}{2}V_{CBOmax}; I_E=0; T_J=150^\circ\text{C}$			0.1 1.0	mA
I_{EBO}	Emitter Cutoff Current		$V_{EB}=7\text{V}; I_C=0$			0.1	mA
h_{FE-1}	DC Current Gain		$I_C=4\text{A}; V_{CE}=4\text{V}$	20			
h_{FE-2}	DC Current Gain		$I_C=10\text{A}; V_{CE}=4\text{V}$	5			
f_T	Current-Gain—Bandwidth Product		$I_C=0.5\text{A}; V_{CE}=10\text{V}$	3.0			MHz

Switching times

t_{on}	Turn-on Time	$I_C=4\text{A}; I_{B1}=-I_{B2}=0.4\text{A}; V_{CC}=30\text{V}$		0.5		μs
t_{off}	Turn-off Time			2.0		μs
t_f	Fall Time			0.7		μs