

INCHANGE Semiconductor

isc Product Specification

isc Silicon NPN Power Transistors

BDT81/83/85/87

DESCRIPTION

- DC Current Gain  $-h_{FE} = 40(\text{Min}) @ I_C = 5A$
- Collector-Emitter Sustaining Voltage-  
:  $V_{CEO(\text{SUS})} = 60V(\text{Min})$ - BDT81;  $80V(\text{Min})$ - BDT83;  
100V(Min)- BDT85;  $120V(\text{Min})$ - BDT87
- Complement to Type BDT82/84/86/88

APPLICATIONS

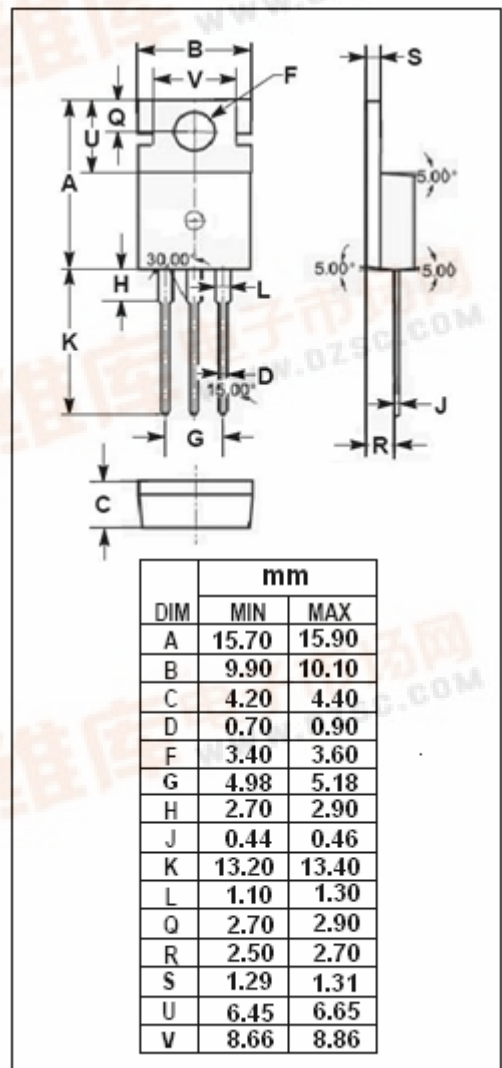
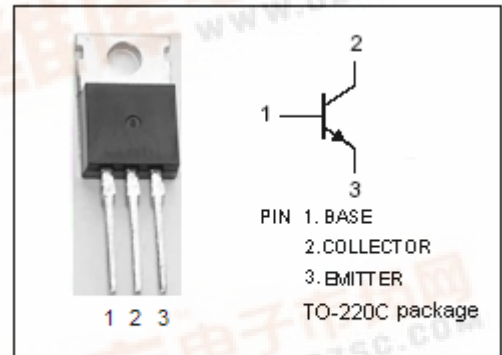
- Designed for use in audio output stages and general amplifier and switching applications

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

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector-Base Voltage	BDT81	60
		BDT83	80
		BDT85	100
		BDT87	120
$V_{CEO}$	Collector-Emitter Voltage	BDT81	60
		BDT83	80
		BDT85	100
		BDT87	120
$V_{EBO}$	Emitter-Base Voltage	7	V
$I_C$	Collector Current-Continuous	15	A
$I_{CM}$	Collector Current-Peak	20	A
$I_B$	Base Current	4	A
$P_C$	Collector Power Dissipation $T_C=25^\circ\text{C}$	125	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	$^\circ\text{C/W}$
$R_{th\ j-a}$	Thermal Resistance, Junction to Ambient	70	$^\circ\text{C/W}$



## isc Silicon NPN Power Transistors

## BDT81/83/85/87

## 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	BDT81	$I_C=30\text{mA}; I_B=0$			V
		BDT83				
		BDT85				
		BDT87				
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage	$I_C=5\text{A}; I_B=0.5\text{A}$			1.0	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage	$I_C=7\text{A}; I_B=0.7\text{A}$			1.6	V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C=5\text{A}; V_{CE}=4\text{V}$			1.5	V
$I_{CES}$	Collector Cutoff Current	$V_{CE}=0.8V_{CB0max}; V_{BE}=0$			1	mA
$I_{CBO}$	Collector Cutoff Current	$V_{CB}=V_{CB0max}; I_E=0$			0.2	mA
$I_{EBO}$	Emitter Cutoff Current	$V_{EB}=7\text{V}; I_C=0$			0.1	mA
$h_{FE-1}$	DC Current Gain	$I_C=50\text{mA}; V_{CE}=10\text{V}$	40			
$h_{FE-2}$	DC Current Gain	$I_C=5\text{A}; V_{CE}=4\text{V}$	40			
$f_T$	Current-Gain—Bandwidth Product	$I_C=0.5\text{A}; V_{CE}=10\text{V}$		10		MHz

## Switching Times

$t_{on}$	Turn-On Time	$I_C=7\text{A}; I_{B1}=-I_{B2}=0.7\text{A}$			1	$\mu\text{s}$
$t_{off}$	Turn-Off Time				2	$\mu\text{s}$