

isc Silicon NPN Power Transistor

BD933/935/937/939/941

DESCRIPTION

- DC Current Gain-
: $h_{FE}=40(\text{Min})@ I_C=150\text{mA}$
- Complement to Type BD934/936/938/940/942

APPLICATIONS

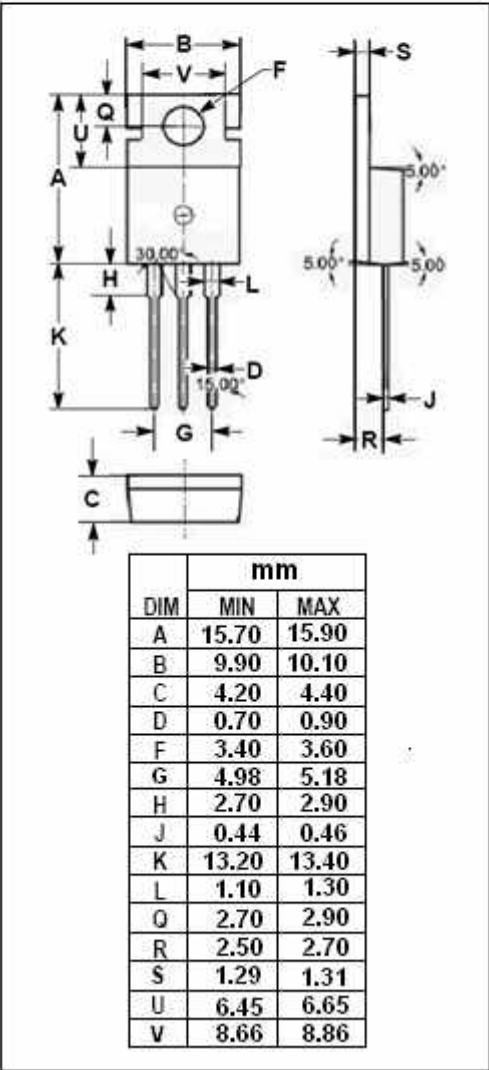
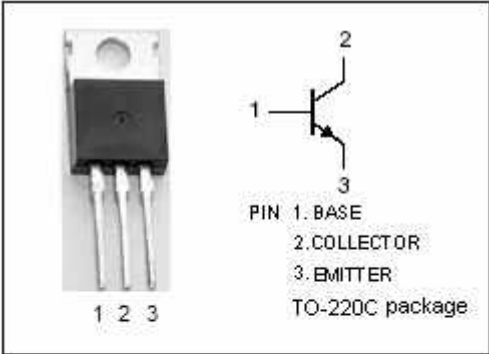
- Designed for use in output stages of audio and television amplifier circuits where high peak powers can occur.

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

SYMBOL	PARAMETER		VALUE	UNIT
V_{CBO}	Collector-Base Voltage	BD933	45	V
		BD935	60	
		BD937	100	
		BD939	120	
		BD941	140	
V_{CEO}	Collector-Emitter Voltage	BD933	45	V
		BD935	60	
		BD937	80	
		BD939	100	
		BD941	120	
V_{EBO}	Emitter-Base Voltage		5	V
I_C	Collector Current-Continuous		3	A
I_{CM}	Collector Current-Peak		7	A
I_B	Base Current-Continuous		0.5	A
P_C	Collector Power Dissipation @ $T_C=25^{\circ}\text{C}$		30	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	4.17	$^{\circ}\text{C/W}$
$R_{th\ j-a}$	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
$V_{CE(SUS)}$	Collector-Emitter Sustaining Voltage	BD933	$I_C=100\text{mA}; I_B=0$	45			V
		BD935		60			
		BD937		80			
		BD939		100			
		BD941		120			
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage		$I_C=1\text{A}; I_B=0.1\text{A}$			0.6	V
$V_{BE(on)}$	Base-Emitter On Voltage		$I_C=1\text{A}; V_{CE}=2\text{V}$			1.3	V
I_{CBO}	Collector Cutoff Current		$V_{CB}=V_{CB0max}; I_E=0$ $V_{CB}=V_{CB0max}; I_E=0, T_J=150^{\circ}\text{C}$			0.05 1	mA
I_{CEO}	Collector Cutoff Current		$V_{CE}=V_{CE0max}; I_B=0$			0.1	mA
I_{EBO}	Emitter Cutoff Current		$V_{EB}=5\text{V}; I_C=0$			0.2	mA
h_{FE-1}	DC Current Gain		$I_C=150\text{mA}; V_{CE}=2\text{V}$	40		250	
h_{FE-2}	DC Current Gain		$I_C=1\text{A}; V_{CE}=2\text{V}$	25			
f_T	Current-Gain—Bandwidth Product		$I_C=250\text{mA}; V_{CE}=10\text{V}$	3			MHz

Switching Times

t_{on}	Turn-On Time	$I_C=1.0\text{A}; I_{B1}=-I_{B2}=0.1\text{A}$		0.4	1.0	μs
t_{off}	Turn-Off Time			1.5	3.0	μs