

Silicon NPN Power Transistor BD933F/935F/937F/939F/941F

DESCRIPTION

- DC Current Gain-
 : $h_{FE} = 40(\text{Min}) @ I_C = 150\text{mA}$
- Complement to Type BD934F/936F/938F/940F/942F

APPLICATIONS

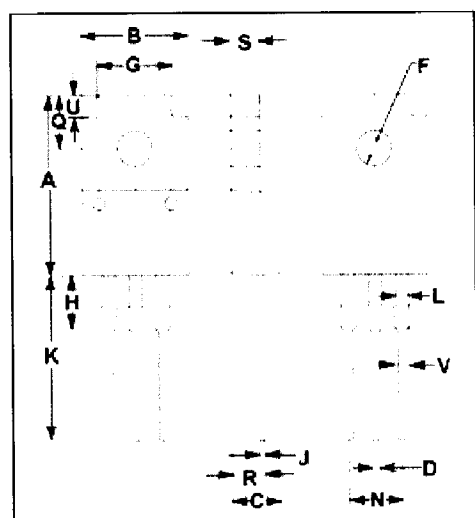
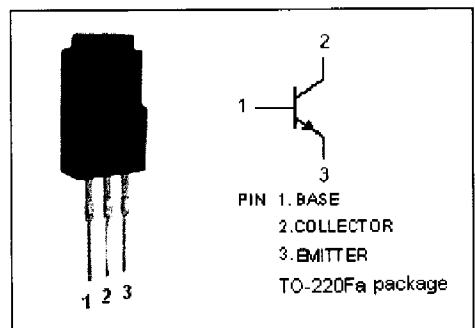
- Designed for use in output stages of audio and television amplifier circuits where high peak powers can occur.

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

SYMBOL	PARAMETER	VALUE	UNIT	
V_{CBO}	Collector-Base Voltage	BD933F	45	V
		BD935F	60	
		BD937F	100	
		BD939F	120	
		BD941F	140	
V_{CEO}	Collector-Emitter Voltage	BD933F	45	V
		BD935F	60	
		BD937F	80	
		BD939F	100	
		BD941F	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 @ $T_C = 25^\circ\text{C}$	19	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-jc}	Thermal Resistance, Junction to Case	4.17	$^\circ\text{C/W}$
R_{th-ja}	Thermal Resistance, Junction to Ambient	55	$^\circ\text{C/W}$



DIM	mm	
	MIN	MAX
A	16.85	17.15
B	9.90	10.10
C	4.35	4.65
D	0.75	0.80
F	3.20	3.40
G	6.90	7.10
H	5.15	5.45
J	0.45	0.75
K	13.35	13.65
L	1.10	1.30
N	4.98	5.18
Q	4.85	5.15
R	2.95	3.25
S	2.70	2.90
U	1.75	2.05
V	1.30	1.50



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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	BD933F	45			V
		BD935F	60			
		BD937F	80			
		BD939F	100			
		BD941F	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	$V_{CB}=V_{CB0max}; I_E=0$ $V_{CB}=V_{CB0max}; I_E=0, T_J=150^\circ\text{C}$			0.1 3.0	mA
I_{CEO}	Collector Cutoff Current	$V_{CE}=V_{CE0max}; I_B=0$			0.5	mA
I_{EBO}	Emitter Cutoff Current	$V_{EB}=5\text{V}; I_C=0$			1.0	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