

Silicon NPN Power Transistor

BD953

DESCRIPTION

- Collector-Emitter Breakdown Voltage-
 : $V_{(BR)CEO} = 100V(\text{Min})$
- DC Current Gain-
 : $h_{FE} = 40(\text{Min}) @ I_C = 500\text{mA}$
- Complement to Type BD954

APPLICATIONS

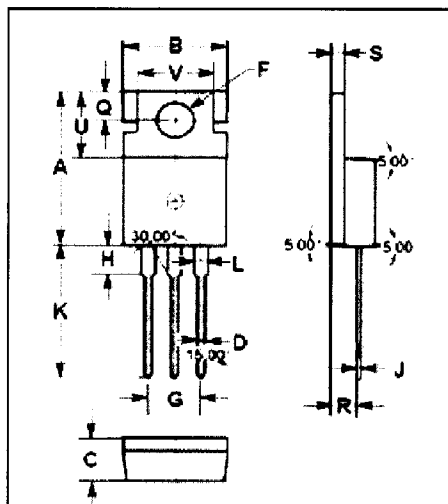
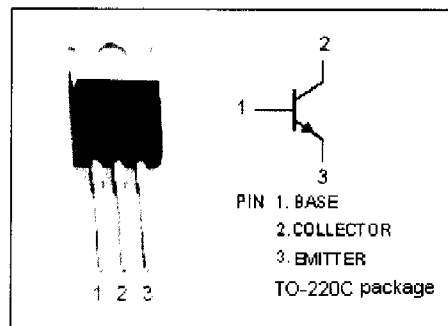
- Designed for power amplifier and switching applications

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	100	V
V_{CEO}	Collector-Emitter Voltage	100	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current-Continuous	5	A
I_{CM}	Collector Current-Peak	8	A
P_C	Collector Power Dissipation @ $T_C = 25^\circ\text{C}$	40	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	3.12	$^\circ\text{C/W}$
$R_{th\ j-a}$	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

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ELECTRICAL CHARACTERISTICS

$T_C=25^\circ\text{C}$ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	$I_C=1\text{mA}; I_B=0$	100			V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C=1\text{mA}; I_E=0$	100			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E=1\text{mA}; I_C=0$	5			V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=2\text{A}; I_B=0.2\text{A}$			1.0	V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C=2\text{A}; V_{CE}=4\text{V}$			1.4	V
I_{CBO}	Collector Cutoff Current	$V_{CB}=100\text{V}; I_E=0$			50	μA
		$V_{CB}=50\text{V}; I_E=0, T_J=150^\circ\text{C}$			1.0	mA
I_{CEO}	Collector Cutoff Current	$V_{CE}=50\text{V}; I_B=0$			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	$I_C=500\text{mA}; V_{CE}=4\text{V}$	40			
h_{FE-2}	DC Current Gain	$I_C=2\text{A}; V_{CE}=4\text{V}$	20			
f_T	Current-Gain—Bandwidth Product	$I_C=500\text{mA}; V_{CE}=4\text{V}$	3			MHz

Switching Times

t_{on}	Turn-On Time	$I_C=1.0\text{A}; I_{B1}=-I_{B2}=0.1\text{A}; V_{CC}=20\text{V}; R_L=20\Omega$		0.3		μs
t_{off}	Turn-Off Time			1.5		μs