

# isc Silicon PNP Power Transistor

## BDX78F

### DESCRIPTION

- Collector-Emitter Breakdown Voltage-  
:  $V_{(BR)CEO} = -80V(\text{Min})$
- Complement to Type BDX77F
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

### APPLICATIONS

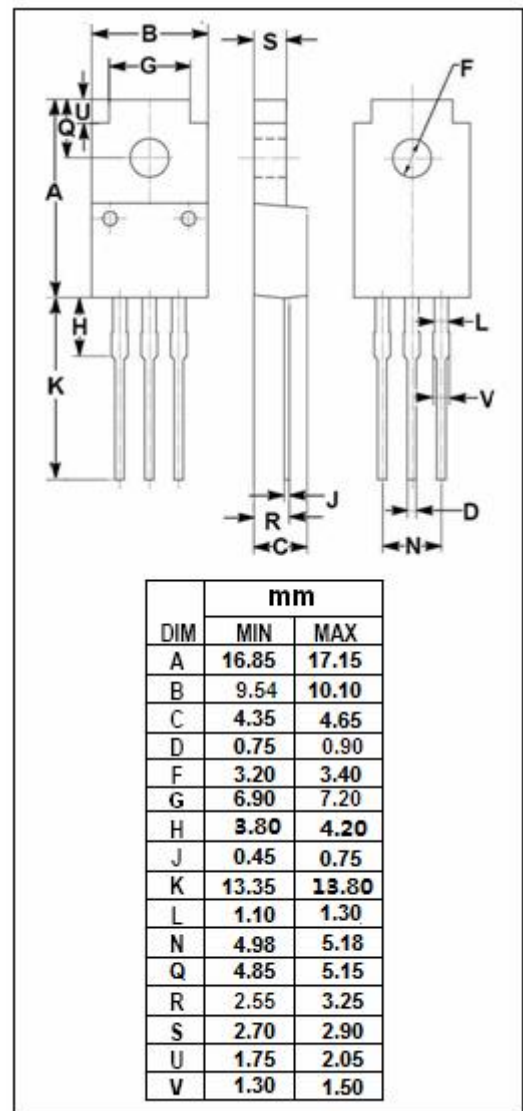
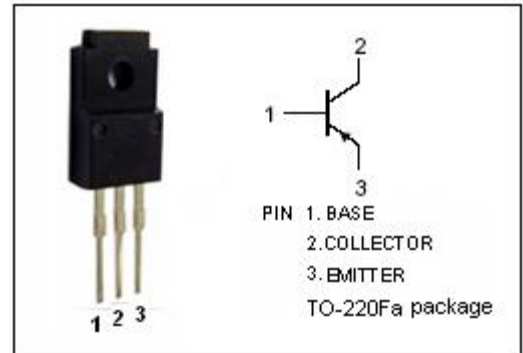
- Designed for use in hi-fi equipment delivering an output of 15 to 15 W into a  $4\ \Omega$  or  $8\ \Omega$  load.

### 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	-80	V
$V_{EBO}$	Emitter-Base Voltage	-5	V
$I_C$	Collector Current-Continuous	-8	A
$I_{CM}$	Collector Current-Peak s	-12	A
$I_B$	Base Current	-3	A
$P_C$	Collector Power Dissipation @ $T_C=25^\circ\text{C}$	32	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	6.3	$^\circ\text{C/W}$



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## ELECTRICAL CHARACTERISTICS

T<sub>C</sub>=25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
V <sub>(BR)CEO</sub>	Collector-Emitter Breakdown Voltage	I <sub>C</sub> = -30mA ; I <sub>B</sub> = 0	-80		V
V <sub>(BR)CBO</sub>	Collector-Base Breakdown Voltage	I <sub>C</sub> = -1mA ; I <sub>E</sub> = 0	-100		V
V <sub>(BR)EBO</sub>	Emitter-Base Breakdown Voltage	I <sub>E</sub> = -1mA ; I <sub>C</sub> = 0	-5		V
V <sub>CE(sat)-1</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = -3A; I <sub>B</sub> = -0.3A		-1.0	V
V <sub>CE(sat)-2</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = -6A; I <sub>B</sub> = -0.6A		-1.5	V
V <sub>BE(sat)</sub>	Base-Emitter Saturation Voltage	I <sub>C</sub> = -6A; I <sub>B</sub> = -0.6A		-2.0	V
V <sub>BE(on)</sub>	Base-Emitter On Voltage	I <sub>C</sub> = -3A ; V <sub>CE</sub> = -2V		-1.5	V
I <sub>CEO</sub>	Collector Cutoff Current	V <sub>CE</sub> = 40V; I <sub>B</sub> = 0		-0.2	mA
I <sub>CBO</sub>	Collector Cutoff Current	V <sub>CB</sub> = V <sub>CBO</sub> ; I <sub>E</sub> = 0 V <sub>CB</sub> = 1/2 V <sub>CBO</sub> ; I <sub>E</sub> = 0; T <sub>J</sub> = 150°C		-0.1 -1.0	mA
I <sub>EBO</sub>	Emitter Cutoff Current	V <sub>EB</sub> = -5V; I <sub>C</sub> =0		-0.5	mA
h <sub>FE</sub>	DC Current Gain	I <sub>C</sub> = -2A ; V <sub>CE</sub> = -2V	30		
f <sub>T</sub>	Current-Gain—Bandwidth Product	I <sub>C</sub> = -0.3A ; V <sub>CE</sub> = -3V, f <sub>test</sub> = 1.0MHz	7.0		MHz

## Switching Times

t <sub>on</sub>	Turn-On Time	I <sub>C</sub> = -2A; I <sub>B1</sub> = -I <sub>B2</sub> = -0.2A		1	μ s
t <sub>off</sub>	Turn-Off Time			2	μ s

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