

## isc Silicon NPN Power Transistor

## BDX77F

## DESCRIPTION

- Collector-Emitter Breakdown Voltage-  
:  $V_{(BR)CEO} = 80V(\text{Min})$
- Complement to Type BDX78F
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

## APPLICATIONS

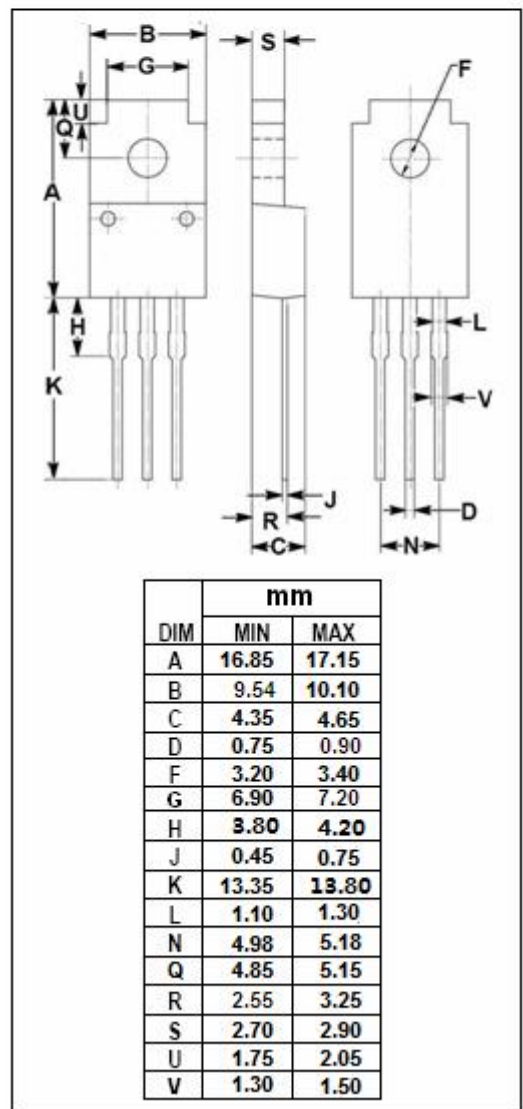
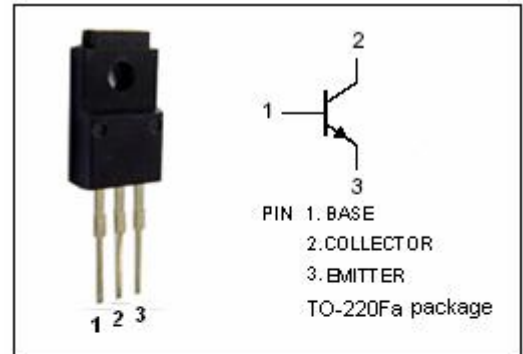
- Designed for use in hi-fi equipment delivering an output of 15 to 15 W into a  $4\ \Omega$  or  $8\ \Omega$  load.

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

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

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	$I_C = 30\text{mA}; I_B = 0$	80		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
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage	$I_C = 3\text{A}; I_B = 0.3\text{A}$		1.0	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage	$I_C = 6\text{A}; I_B = 0.6\text{A}$		1.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 6\text{A}; I_B = 0.6\text{A}$		2.0	V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C = 3\text{A}; V_{CE} = 2\text{V}$		1.5	V
$I_{CEO}$	Collector Cutoff Current	$V_{CE} = 30\text{V}; I_B = 0$		0.2	mA
$I_{CBO}$	Collector Cutoff Current	$V_{CB} = V_{CBO}; I_E = 0$ $V_{CB} = \frac{1}{2}V_{CBO}; I_E = 0; T_J = 150^{\circ}\text{C}$		0.1 1.0	mA
$I_{EBO}$	Emitter Cutoff Current	$V_{EB} = 5\text{V}; I_C = 0$		0.5	mA
$h_{FE}$	DC Current Gain	$I_C = 2\text{A}; V_{CE} = 2\text{V}$	30		
$f_T$	Current-Gain—Bandwidth Product	$I_C = 0.3\text{A}; V_{CE} = 3\text{V}; f_{test} = 1.0\text{MHz}$	7.0		MHz

## Switching Times

$t_{on}$	Turn-On Time	$I_C = 2\text{A}; I_{B1} = -I_{B2} = 0.2\text{A}$		1	$\mu\text{s}$
$t_{off}$	Turn-Off Time			4	$\mu\text{s}$

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