

**isc Silicon NPN Power Transistor**

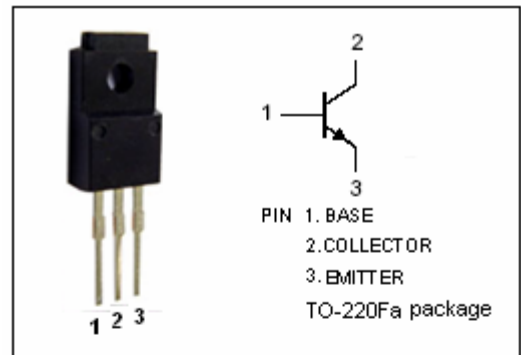
**BUT76AF**

**DESCRIPTION**

- High Voltage
- High Speed Switching
- High Power Dissipation

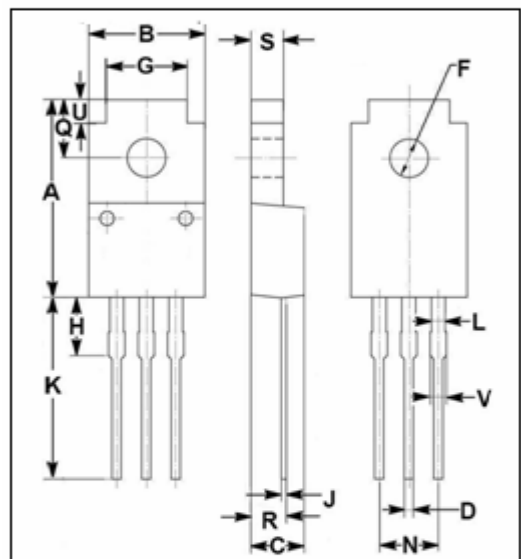
**APPLICATIONS**

- Designed for switching mode power supply, inverters, motor control and relay driver applications.



**ABSOLUTE MAXIMUM RATINGS (T<sub>a</sub>=25°C)**

SYMBOL	PARAMETER	VALUE	UNIT
V <sub>CES</sub>	Collector-Emitter Voltage	1000	V
V <sub>CEO</sub>	Collector-Emitter Voltage	450	V
V <sub>EBO</sub>	Emitter-Base Voltage	7	V
I <sub>C</sub>	Collector Current-Continuous	12	A
I <sub>CM</sub>	Collector Current-Peak	20	A
I <sub>B</sub>	Base Current-Continuous	3	A
I <sub>BM</sub>	Base Current-peak	6	A
P <sub>C</sub>	Collector Power Dissipation @T <sub>C</sub> =25°C	40	W
T <sub>j</sub>	Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature Range	-65~150	°C



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

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	MAX	UNIT
R <sub>th j-c</sub>	Thermal Resistance, Junction to Case	1.13	°C/W

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## ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	$I_C=0.5\text{A}; I_B=0; L=125\text{mH}$	450			V
$V_{(BR)CES}$	Collector-Emitter Breakdown Voltage	$I_C=1\text{mA}; V_{BE}=-1.5\text{V}$	1000			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E=1\text{mA}; I_C=0$	7			V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=5\text{A}; I_B=1\text{A}$			1.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=5\text{A}; I_B=1\text{A}$			1.6	V
$I_{CES}$	Collector Cutoff Current	$V_{CE}=1000\text{V}; V_{BE}=-1.5\text{V}$ $V_{CE}=1000\text{V}; V_{BE}=-1.5\text{V}; T_C=100^{\circ}\text{C}$			0.5 2.0	mA
$I_{EBO}$	Emitter Cutoff Current	$V_{EB}=7\text{V}; I_C=0$			0.5	mA
$h_{FE}$	DC Current Gain	$I_C=8\text{A}; V_{CE}=3\text{V}$	3.2			
$f_T$	Current-Gain—Bandwidth Product	$I_C=1\text{A}; V_{CE}=10\text{V}$		7		MHz
$C_{OB}$	Output Capacitance	$I_E=0; V_{CB}=10\text{V}; f_{test}=1.0\text{MHz}$		150		pF

## Switching Times; Resistive Load

$t_{on}$	Turn-On Time	$I_C=5\text{A}; I_{B1}=-I_B=1\text{A}; V_{CE}=150\text{V}$			1.0	$\mu\text{s}$
$t_s$	Storage Time				3.0	$\mu\text{s}$
$t_f$	Fall Time				0.8	$\mu\text{s}$