

isc Silicon NPN Power Transistor

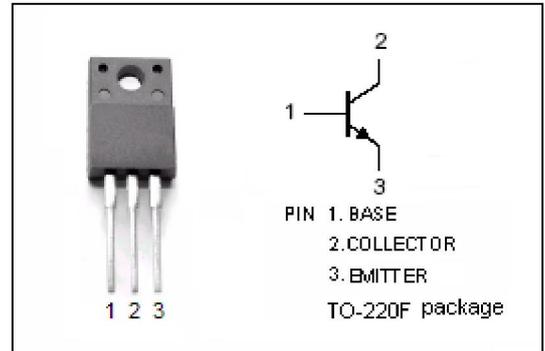
BUT11APX

DESCRIPTION

- High Voltage
- High Speed Switching

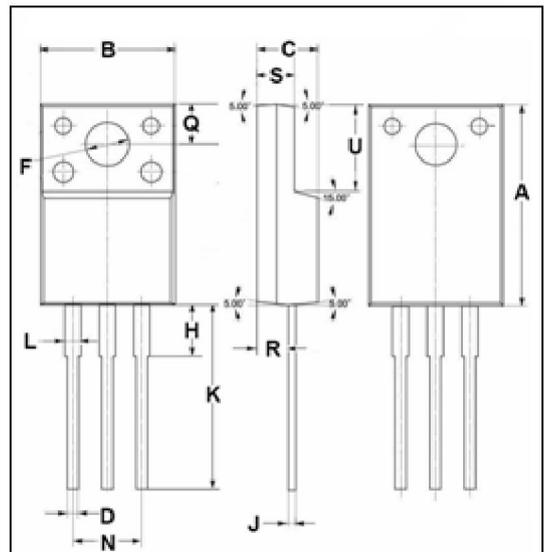
APPLICATIONS

- Converters
- Inverters
- Switching regulators
- Motor control systems



ABSOLUTE MAXIMUM RATINGS (T_a=25°C)

SYMBOL	PARAMETER	VALUE	UNIT
V _{CES}	Collector-Emitter Voltage V _{BE} = 0	1000	V
V _{CEO}	Collector-Emitter Voltage	450	V
V _{EBO}	Emitter-Base Voltage	9	V
I _C	Collector Current-Continuous	5	A
I _{CM}	Collector Current-Peak	10	A
I _B	Base Current	2	A
I _{BM}	Base Current-Peak	4	A
P _C	Collector Power Dissipation @T _C =25°C	32	W
T _j	Junction Temperature	150	°C
T _{stg}	Storage Temperature Range	-65~150	°C



DIM	mm	
	MIN	MAX
A	14.95	15.05
B	10.00	10.10
C	4.40	4.60
D	0.75	0.80
F	3.10	3.30
H	3.70	3.90
J	0.50	0.70
K	13.4	13.6
L	1.10	1.30
N	5.00	5.20
Q	2.70	2.90
R	2.20	2.40
S	2.65	2.85
U	6.40	6.60

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
R _{th j-c}	Thermal Resistance, Junction to Case	3.95	°C/W

isc Silicon NPN Power Transistor

BUT11APX

ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C = 0.1\text{A}; I_B = 0$	450			V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 3\text{A}; I_B = 0.6\text{A}$			1.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 2.5\text{A}; I_B = 0.33\text{A}$			1.3	V
I_{CES}	Collector Cutoff Current	$V_{CE} = 1000\text{V}; V_{BE} = 0$ $V_{CE} = 1000\text{V}; V_{BE} = 0; T_j = 125^\circ\text{C}$			1.0 2.0	mA
I_{EBO}	Emitter Cutoff Current	$V_{EB} = 9\text{V}; I_C = 0$			10	mA
h_{FE-1}	DC Current Gain	$I_C = 5\text{mA}; V_{CE} = 5\text{V}$	10		35	
h_{FE-2}	DC Current Gain	$I_C = 0.5\text{A}; V_{CE} = 5\text{V}$	14		35	
h_{FE-3}	DC Current Gain	$I_C = 2.5\text{A}; V_{CE} = 5\text{V}$	10		17	
h_{FE-4}	DC Current Gain	$I_C = 3.5\text{A}; V_{CE} = 5\text{V}$	8		12	

Switching Times; Resistive Load

t_{on}	Turn-on Time	$I_C = 2.5\text{A}; I_{B1} = -I_{B2} = 0.5\text{A};$ $R_L = 75\ \Omega; V_{BB2} = 4\text{V}$			0.7	μs
t_s	Storage Time				4.0	μs
t_f	Fall Time				0.45	μs