

**isc Silicon NPN Power Transistor**

**BUS48AP**

**DESCRIPTION**

- High Voltage Capability
- High Current Capability
- Fast Switching Speed

**APPLICATIONS**

Designed for high-voltage,high-speed, power switching in inductive circuits where fall time is critical. They are particularly suited for line-operated switchmode applications such as:

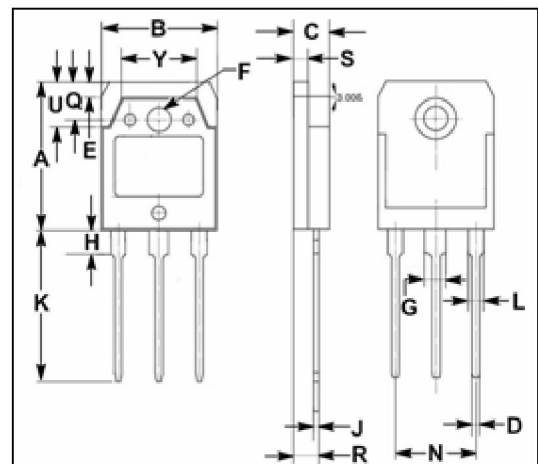
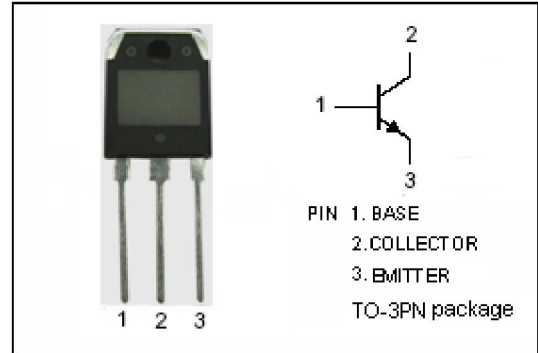
- Switching regulators
- Inverters
- Solenoid and relay drivers
- Motor controls
- Deflection circuits

**Absolute maximum ratings(Ta=25°C)**

SYMBOL	PARAMETER	VALUE	UNIT
V <sub>CEV</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	15	A
I <sub>CM</sub>	Collector Current-Peak	30	A
I <sub>B</sub>	Base Current-Continuous	5	A
I <sub>BM</sub>	Base Current-peak	20	A
P <sub>C</sub>	Collector Power Dissipation @T <sub>C</sub> =25°C	150	W
T <sub>j</sub>	Junction Temperature	175	°C
T <sub>stg</sub>	Storage Temperature Range	-65~175	°C

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	MAX	UNIT
R <sub>thj-c</sub>	Thermal Resistance,Junction to Case	1.0	°C/W



DIM	mm	
	MIN	MAX
A	19.90	20.10
B	15.50	15.70
C	4.70	4.90
D	0.90	1.10
E	1.90	2.10
F	3.40	3.60
G	2.90	3.10
H	3.20	3.40
J	0.595	0.605
K	20.50	20.70
L	1.90	2.10
N	10.89	10.91
Q	4.90	5.10
R	3.35	3.45
S	1.995	2.005
U	5.90	6.10
Y	9.90	10.10

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## ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C=0.2\text{A}; I_B=0; L=25\text{mH}$	450		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E=50\text{mA}; I_C=0$	7		V
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage	$I_C=8\text{A}; I_B=1.6\text{A}$ $I_C=8\text{A}; I_B=1.6\text{A}; T_C=100^{\circ}\text{C}$		1.5 2.0	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage	$I_C=12\text{A}; I_B=2.4\text{A}$		5.0	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=8\text{A}; I_B=1.6\text{A}$ $I_C=8\text{A}; I_B=1.6\text{A}; T_C=100^{\circ}\text{C}$		1.6 1.6	V
$I_{CER}$	Collector Cutoff Current	$V_{CE}=\text{rated } V_{CER}; R_{BE}=10\ \Omega$ $V_{CE}=\text{rated } V_{CER}; R_{BE}=10\ \Omega; T_C=125^{\circ}\text{C}$		0.5 3.0	mA
$I_{CEV}$	Collector Cutoff Current	$V_{CE}=\text{rated } V_{CES}; V_{BE(off)}=1.5\text{V}$ $V_{CE}=\text{rated } V_{CES}; V_{BE(off)}=1.5\text{V}; T_C=125^{\circ}\text{C}$		0.2 2.0	mA
$I_{EBO}$	Emitter Cutoff Current	$V_{EB}=5\text{V}; I_C=0$		0.1	mA
$h_{FE}$	DC Current Gain	$I_C=8\text{A}; V_{CE}=5\text{V}$	8		
$C_{OB}$	Output Capacitance	$I_E=0; V_{CB}=10\text{V}; f_{\text{test}}=1\text{MHz}$		350	pF

## Switching times Resistive Load

$t_d$	Delay Time	$I_C=10\text{A}; I_{B1}=2\text{A}; V_{CC}=250\text{V};$ $V_{BE(off)}=5\text{V}; \text{Duty Cycle} \leq 2\%$		0.2	$\mu\text{s}$
$t_r$	Rise Time			0.7	$\mu\text{s}$
$t_s$	Storage Time			2.0	$\mu\text{s}$
$t_f$	Fall Time			0.4	$\mu\text{s}$