

isc Silicon NPN Power Transistor

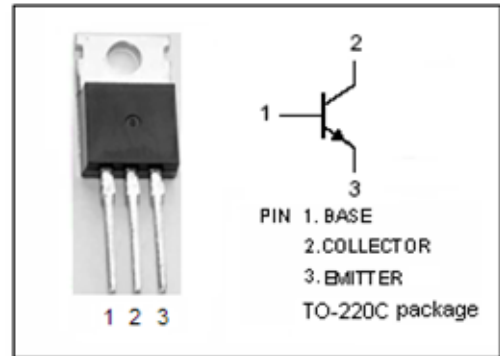
BUT93

DESCRIPTION

- High Voltage
- High Speed Switching
- High Power Dissipation

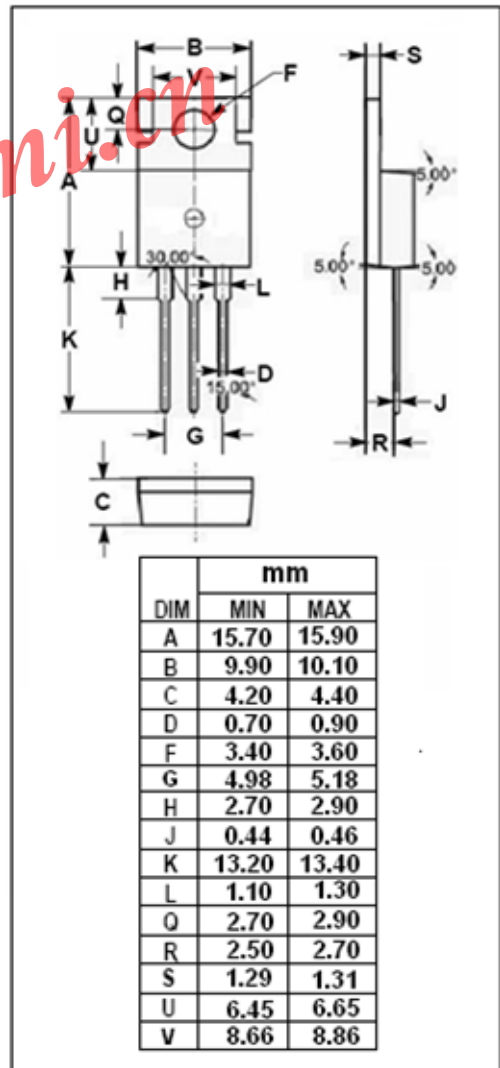
APPLICATIONS

- Designed for switching mode power supply and electronic ballast applications.



ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

SYMBOL	PARAMETER	VALUE	UNIT
V <sub>CES</sub>	Collector-Emitter Voltage	600	V
V <sub>CEO</sub>	Collector-Emitter Voltage	350	V
V <sub>EBO</sub>	Emitter-Base Voltage	5	V
I <sub>C</sub>	Collector Current-Continuous	4	A
I <sub>CM</sub>	Collector Current-Peak	6	A
I <sub>B</sub>	Base Current- Continuous	2	A
P <sub>C</sub>	Collector Power Dissipation @T <sub>C</sub> =25°C	50	W
T <sub>j</sub>	Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature Range	-65~150	°C



THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
R <sub>th j-c</sub>	Thermal Resistance, Junction to Case	2.5	°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	$I_C=0.1\text{A}; I_B=0, L=125\text{mH}$	350			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	$I_C=0.3\text{A}; I_B=30\text{mA}$			0.5	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage	$I_C=3\text{A}; I_B=750\text{mA}$			1.0	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=1\text{A}; I_B=0.2\text{A}$			1.1	V
$I_{CES}$	Collector Cutoff Current	$V_{CE}=600\text{V}; V_{BE}=0$ $V_{CE}=600\text{V}; V_{BE}=0; T_C=125^{\circ}\text{C}$			0.2 1.5	mA
$h_{FE}$	DC Current Gain	$I_C=1\text{A}; V_{CE}=2\text{V}$	10			
$f_T$	Current-Gain—Bandwidth Product	$I_C=0.5\text{A}; V_{CE}=10\text{V}$		9		MHz

Switching Times ;Resistive Load

$t_s$	Storage Time	$I_C=1\text{A}; I_{B1}=0.2\text{A}; I_{B2}=-0.4\text{A}$			2.0	$\mu\text{s}$
$t_f$	Fall Time				0.25	$\mu\text{s}$