

**isc Silicon NPN Power Transistor**

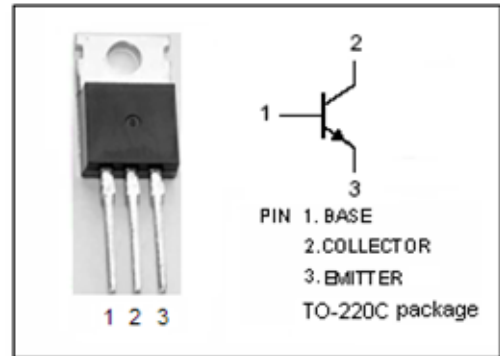
**BUT54**

**DESCRIPTION**

- High Voltage
- High Speed Switching
- High Power Dissipation

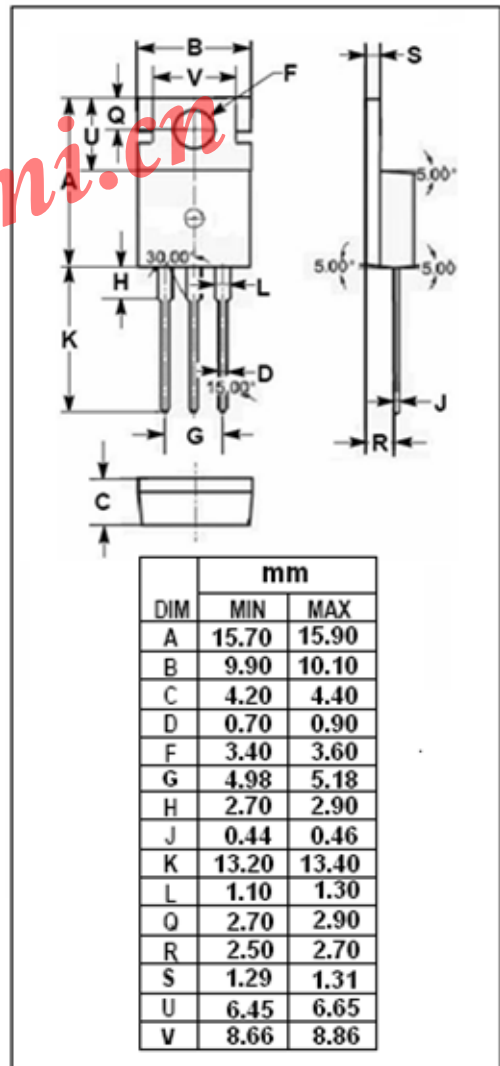
**APPLICATIONS**

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



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

SYMBOL	PARAMETER	VALUE	UNIT
V <sub>CES</sub>	Collector-Emitter Voltage	800	V
V <sub>CER</sub>	Collector-Emitter Voltage R <sub>BE</sub> ≤ 100 Ω	800	V
V <sub>CEO</sub>	Collector-Emitter Voltage	430	V
V <sub>EBO</sub>	Emitter-Base Voltage	6	V
I <sub>C</sub>	Collector Current-Continuous	8	A
I <sub>CM</sub>	Collector Current-Peak	10	A
I <sub>BM</sub>	Base Current-Peak	4	A
P <sub>C</sub>	Collector Power Dissipation @ T <sub>C</sub> =25°C	100	W
T <sub>j</sub>	Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature Range	-55~150	°C



**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	MAX	UNIT
R <sub>th j-c</sub>	Thermal Resistance, Junction to Case	1.25	°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	$I_C=0.1\text{A}; I_B=0, L=125\text{mH}$	430			V
$V_{(BR)CER}$	Collector-Emitter Breakdown Voltage	$I_C=0.5\text{mA}; I_B=0, R_{BE}\leq 100\ \Omega$	800			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E=1\text{mA}; I_C=0$	6			V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=4\text{A}; I_B=0.8\text{A}$			5.0	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=4\text{A}; I_B=0.8\text{A}$			2.0	V
$I_{CES}$	Collector Cutoff Current	$V_{CE}=800\text{V}; V_{BE}=0$ $V_{CE}=800\text{V}; V_{BE}=0; T_C=150^{\circ}\text{C}$			1.0 2.0	mA
$h_{FE-1}$	DC Current Gain	$I_C=1\text{A}; V_{CE}=5\text{V}$	20		45	
$h_{FE-2}$	DC Current Gain	$I_C=4\text{A}; V_{CE}=5\text{V}$	5.5			
$f_T$	Current-Gain—Bandwidth Product	$I_C=0.5\text{A}; V_{CE}=10\text{V}$		10		MHz

Switching Times ;Resistive Load

$t_{off}$	Turn-off Time	$I_C=4\text{A}; I_{B1}=-I_{B2}=1.25\text{A}; t_p=20\ \mu\text{s}$			4.0	$\mu\text{s}$
$t_f$	Fall Time				1.0	$\mu\text{s}$