

isc Silicon NPN Power Transistor
BUL312
DESCRIPTION

- Collector–Emitter Sustaining Voltage
: $V_{CEO(SUS)} = 500V(\text{Min.})$
- Low Collector Saturation Voltage
: $V_{CE(sat)} = 0.5V(\text{Max}) @ I_C = 1A$
- High Switching Speed
- 100% avalanche tested
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

APPLICATIONS

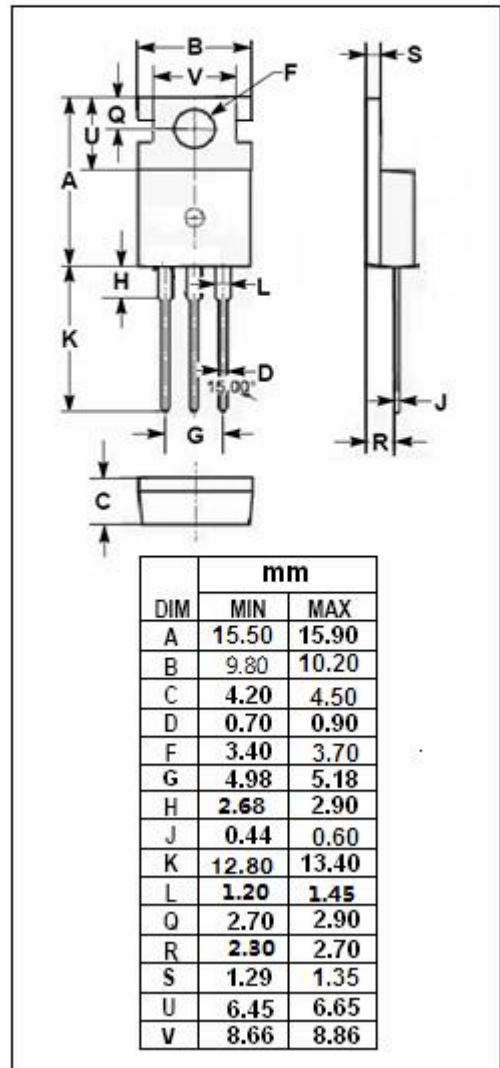
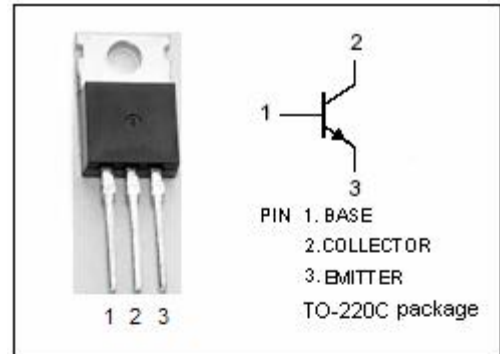
- Designed for use in lighting applications and low cost switch-mode power supplies.

ABSOLUTE MAXIMUM RATINGS($T_a=25^\circ\text{C}$)

SYMBOL	PARAMETER	VALUE	UNIT
V_{CES}	Collector-Emitter Voltage	1150	V
V_{CEO}	Collector-Emitter Voltage	500	V
V_{EBO}	Emitter-Base Voltage	9	V
I_C	Collector Current-Continuous	5	A
I_{CM}	Collector Current-peak $t_p < 5\text{ms}$	10	A
I_B	Base Current-Continuous	3	A
I_{BM}	Base Current-peak $t_p < 5\text{ms}$	4	A
P_C	Collector Power Dissipation $T_C=25^\circ\text{C}$	75	W
T_j	Junction Temperature	150	$^\circ\text{C}$
T_{stg}	Storage Temperature Range	-65~150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-c}$	Thermal Resistance, Junction to Case	1.65	$^\circ\text{C}/\text{W}$
$R_{th\ j-A}$	Thermal Resistance, Junction to Ambient	62.5	$^\circ\text{C}/\text{W}$



ELECTRICAL CHARACTERISTICS

 T_C =25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V _{CE(SUS)}	Collector-Emitter Sustaining Voltage	I _C = 50mA; I _B =0	500			V
V _{(BR)EBO}	Emitter-Base Breakdown Voltage	I _E = 10mA; I _C = 0	9			V
V _{CE(sat)-1}	Collector-Emitter Saturation Voltage	I _C = 1A; I _B = 0.2A			0.5	V
V _{CE(sat)-2}	Collector-Emitter Saturation Voltage	I _C = 2A; I _B = 0.4A			0.7	V
V _{CE(sat)-3}	Collector-Emitter Saturation Voltage	I _C = 3A; I _B = 0.6A			1.1	V
V _{BE(sat)-1}	Base-Emitter Saturation Voltage	I _C = 1A; I _B = 0.2A			1.0	V
V _{BE(sat)-2}	Base-Emitter Saturation Voltage	I _C = 2A; I _B = 0.4A			1.1	V
V _{BE(sat)-3}	Base-Emitter Saturation Voltage	I _C = 3A; I _B = 0.6A			1.2	V
I _{CES}	Collector Cutoff Current	V _{CE} =1150V; V _{BE} = 0 V _{CE} =1150V; V _{BE} = 0, T _C = 125°C			1.0 2.0	mA
I _{CEO}	Collector Cutoff Current	V _{CE} = 500V; I _B = 0			0.25	mA
h _{FE-1}	DC Current Gain	I _C = 10mA; V _{CE} = 5V	8			
h _{FE-2}	DC Current Gain	I _C = 3A; V _{CE} = 2.5V		10		
Switching Times, Inductive Load						
t _s	Storage Time	I _C = 2A; V _{CL} = 250V; L= 200 μ H; I _{B1} = 0.4A; V _{BE(off)} = -5V; R _{BB} = 0 Ω			1.9	μ s
t _f	Fall Time				0.16	μ s

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