

isc Silicon NPN Power Transistor

SGSF313

DESCRIPTION

- Collector-Emitter Sustaining Voltage-
: $V_{CEO(SUS)} = 450V(\text{Min})$
- High Switching Speed
- Low Saturation Voltage

APPLICATIONS

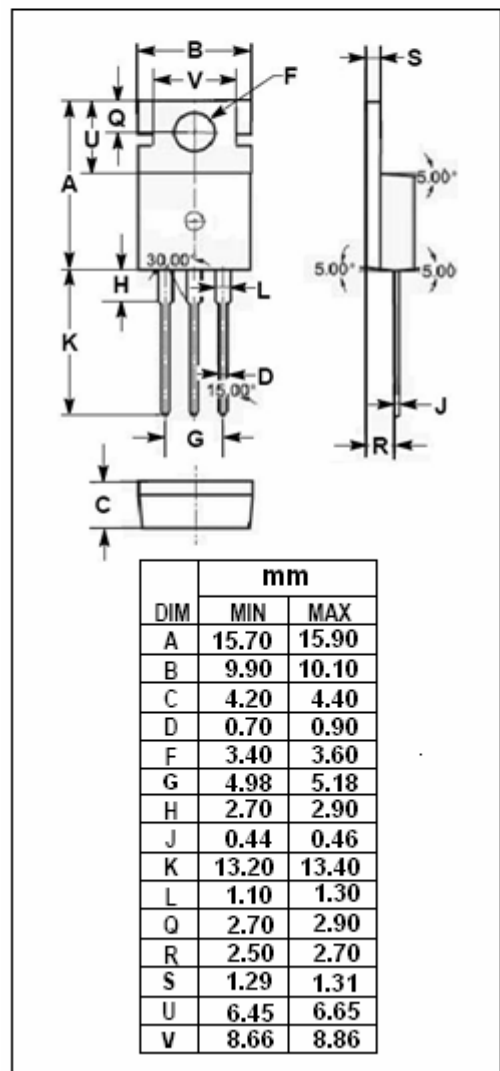
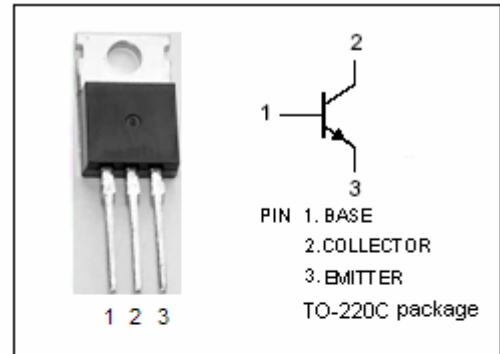
- Designed to be used as switch in high efficiency off-line (220V mains) switching power supplies for consumer applications like sets VCR's and monitors.

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CEX}	Collector-Emitter Voltage($V_{BE} = -2.5V$)	1000	V
V_{CES}	Collector-Emitter Voltage($V_{BE} = 0$)	1000	V
V_{CEO}	Collector-Emitter Voltage	450	V
V_{EBO}	Emitter-Base Voltage	10	V
I_C	Collector Current-Continuous	7	A
I_{CM}	Collector Current-Peak	10	A
I_B	Base Current	3	A
I_{BM}	Base Current-Peak	6	A
P_D	Total Power Dissipation@ $T_C=25^\circ\text{C}$	70	W
T_j	Junction Temperature	150	$^\circ\text{C}$
T_{stg}	Storage Temperature	-65~150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-c}$	Thermal Resistance, Junction to Case	1.78	$^\circ\text{C/W}$



isc Silicon NPN Power Transistor

SGSF313

ELECTRICAL CHARACTERISTICS

T_j=25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V _{CEO(SUS)}	Collector-Emitter Sustaining Voltage	I _C = 0.1A; L= 25mH	450			V
V _{CE(sat)-1}	Collector-Emitter Saturation Voltage	I _C = 1 A ;I _B = 0.1A I _C = 1 A ;I _B = 0.1 A ;T _C =125°C			0.5 0.6	V
V _{CE(sat)-2}	Collector-Emitter Saturation Voltage	I _C = 2A ;I _B = 0.4 A I _C = 2A ;I _B = 0.4 A ;T _C =125°C			0.45 0.8	V
V _{CE(sat)-3}	Collector-Emitter Saturation Voltage	I _C = 2.5A ;I _B = 0.5 A			0.75	V
V _{BE(sat)-1}	Base-Emitter Saturation Voltage	I _C = 1A; I _B = 0.1A			1.1	V
V _{BE(sat)-2}	Base-Emitter Saturation Voltage	I _C = 2A; I _B = 0.4A			1.25	V
V _{BE(sat)-3}	Base-Emitter Saturation Voltage	I _C = 2.5A; I _B = 0.5 A			1.3	V
I _{CEs}	Collector Cutoff Current	V _{CE} = 1000V;V _{BE} = 0 V _{CE} = 1000V;V _{BE} = 0;T _C =125°C			0.01 0.1	mA
I _{CEO}	Collector Cutoff Current	V _{CE} = 450V; I _B = 0			0.1	mA
h _{FE-1}	DC Current Gain	I _C = 1A ; V _{CE} = 2.5V I _C = 1A ; V _{CE} = 2.5V;T _C =125°C	12	25		
h _{FE-2}	DC Current Gain	I _C = 1A ; V _{CE} = 5V I _C = 1A ; V _{CE} = 5V;T _C =125°C	15	28	45	
h _{FE-3}	DC Current Gain	I _C = 2A ; V _{CE} = 1V I _C = 2A ; V _{CE} = 1V;T _C =125°C	6	12		
h _{FE-4}	DC Current Gain	I _C = 5mA; V _{CE} = 5V	10			

Switching Times; Resistive Load

t _{on}	Turn-on Time	V _{CC} =250V ,I _C =2.5A I _{B1} = 0.5A;I _{B2} = -1A		0.5	1	μ s
t _s	Storage Time			1.5	2.5	μ s
t _f	Turn-off Time			0.18	0.3	μ s