

isc Silicon NPN Power Transistor

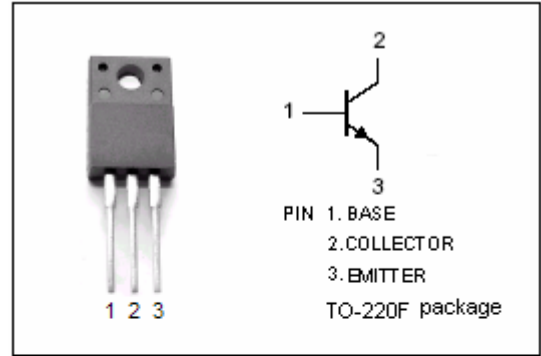
SGSF313PI

DESCRIPTION

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

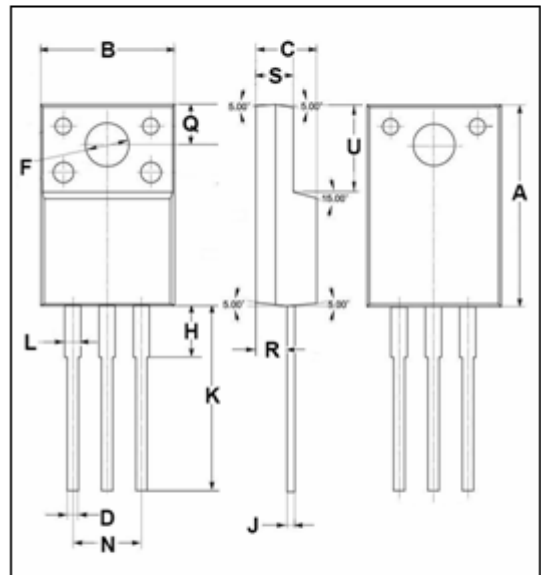
APPLICATIONS

- 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 @ $T_C=25^{\circ}\text{C}$	35	W
T_j	Junction Temperature	150	$^{\circ}\text{C}$
T_{stg}	Storage Temperature	-65~150	$^{\circ}\text{C}$



DIM	mm	
	MIN	MAX
A	14.95	15.05
B	10.00	10.10
C	4.40	4.60
D	0.75	0.80
F	3.10	3.30
H	3.70	3.90
J	0.50	0.70
K	13.4	13.6
L	1.10	1.30
N	5.00	5.20
Q	2.70	2.90
R	2.20	2.40
S	2.65	2.85
U	6.40	6.60

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-c}$	Thermal Resistance, Junction to Case	3.57	$^{\circ}\text{C}/\text{W}$

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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