

isc Silicon NPN Power Transistor
2SC4509
DESCRIPTION

- High Collector-Emitter Sustaining Voltage-
: $V_{CEO(SUS)} = 400V(\text{Min.})$
- High Switching Speed
- High Reliability
- Low Collector Saturation Voltage
- 100% avalanche tested
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

APPLICATIONS

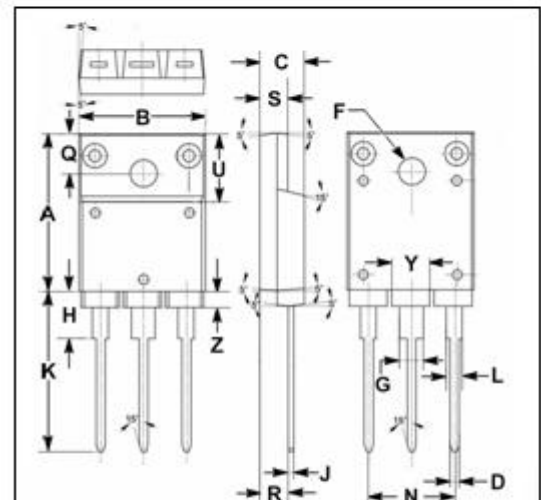
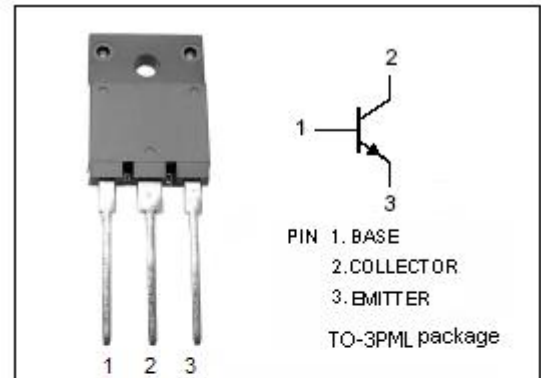
- Switching regulators
- DC-DC converter
- Solid state relay
- General purpose power amplifiers

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	500	V
V_{CEO}	Collector-Emitter Voltage	400	V
V_{EBO}	Emitter-Base voltage	10	V
I_C	Collector Current-Continuous	10	A
I_B	Base Current-Continuous	3	A
P_C	Collector Power Dissipation @ $T_c = 25^\circ\text{C}$	80	W
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{stg}	Storage Temperature Range	-55~150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
R_{thj-c}	Thermal Resistance, Junction to Case	1.56	$^\circ\text{C/W}$



DIM	mm	
	MIN	MAX
A	19.90	20.10
B	15.90	16.10
C	5.50	5.70
D	0.90	1.10
F	3.30	3.50
G	2.90	3.10
H	5.90	6.10
J	0.595	0.605
K	22.30	22.50
L	1.90	2.10
N	10.80	11.00
Q	4.90	5.10
R	3.75	3.95
S	3.20	3.40
U	9.90	10.10
Y	4.70	4.90
Z	1.90	2.10

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ELECTRICAL CHARACTERISTICS

T_c=25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V _{CEO(SUS)}	Collector-Emitter Sustaining Voltage	I _C = 0.2A; I _B = 0	400			V
V _{(BR)CBO}	Collector-Base Breakdown Voltage	I _C = 1mA; I _E = 0	500			V
V _{(BR)EBO}	Emitter-Base Breakdown Voltage	I _E = 1mA; I _C = 0	10			V
V _{CE(sat)}	Collector-Emitter Saturation Voltage	I _C = 4A; I _B = 0.8A			0.8	V
V _{BE(sat)}	Base-Emitter Saturation Voltage	I _C = 4A; I _B = 0.8A			1.2	V
I _{CBO}	Collector Cutoff Current	V _{CB} = 450V; I _E = 0			0.1	mA
I _{EBO}	Emitter Cutoff Current	V _{EB} = 10V; I _C = 0			0.1	mA
h _{FE}	DC Current Gain	I _C = 1A; V _{CE} = 5V	25		65	

Switching times

t _{on}	Turn-on Time	I _C = 5A , I _{B1} = 0.5A; I _{B2} = -1A R _L = 30 Ω ; P _W =20 μ s; Duty Cycle ≤2%			1.0	μ s
t _{stg}	Storage Time				2.5	μ s
t _f	Fall Time				0.5	μ s

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