

isc Silicon NPN Power Transistor
2SC4139
DESCRIPTION

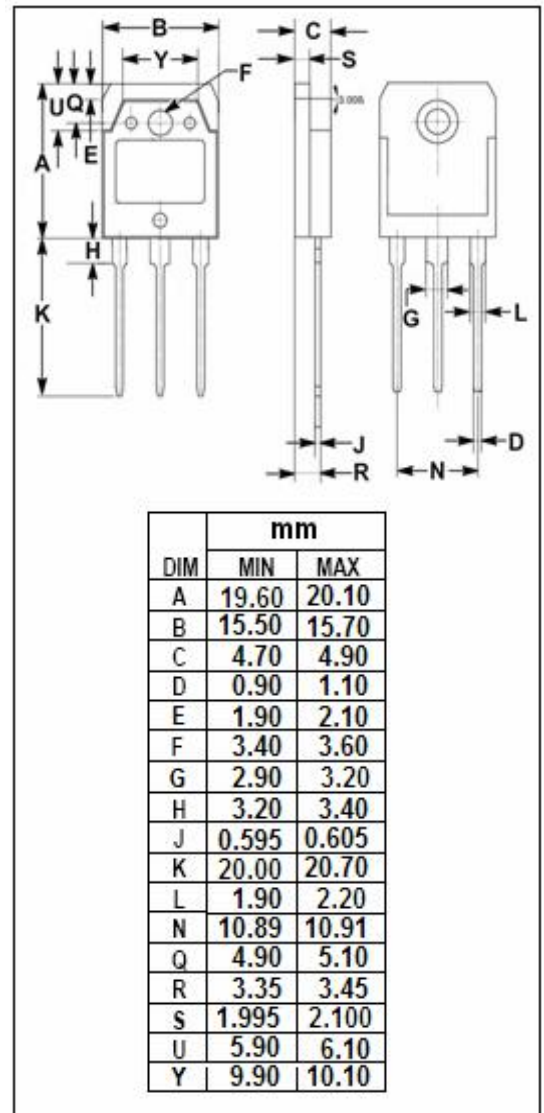
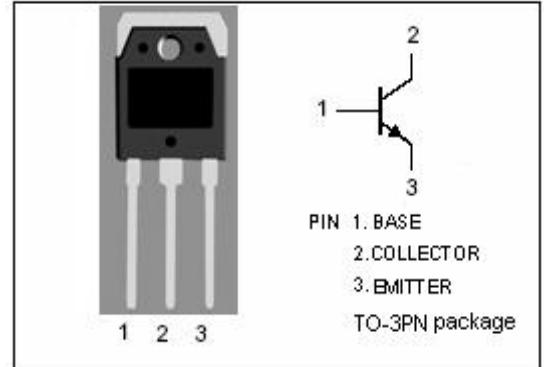
- High Collector-Emitter Breakdown Voltage-
: $V_{(BR)CEO} = 400V(\text{Min})$
- High Switching Speed
- High Reliability
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

APPLICATIONS

- Designed for switching regulator and general purpose applications.

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	15	A
I_{CM}	Collector Current-Peak(Pulse)	30	A
I_B	Base Current-Continuous	5	A
P_C	Collector Power Dissipation @ $T_c = 25^\circ\text{C}$	120	W
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{stg}	Storage Temperature Range	-55~150	$^\circ\text{C}$



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ELECTRICAL CHARACTERISTICS

T_c=25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V _{(BR)CEO}	Collector-Emitter Breakdown Voltage	I _C = 25mA ; I _B = 0	400			V
V _{CE(sat)}	Collector-Emitter Saturation Voltage	I _C = 8A; I _B = 1.6A			0.5	V
V _{BE(sat)}	Base-Emitter Saturation Voltage	I _C = 8A; I _B = 1.6A			1.3	V
I _{CBO}	Collector Cutoff Current	V _{CB} = 500V ; 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 = 8A ; V _{CE} = 4V	10		30	
C _{OB}	Output Capacitance	I _E = 0 ; V _{CB} = 10V; f _{test} =1.0MHz		85		pF
f _T	Current-Gain—Bandwidth Product	I _E = -1.5A ; V _{CE} = 12V		10		MHz

Switching Times

t _{on}	Turn-on Time				1.0	μs
t _{stg}	Storage Time	I _C = 8A, I _{B1} = 0.8A; I _{B2} = -1.6A R _L = 25 Ω ; V _{CC} = 200V			3.0	μs
t _f	Fall Time				0.5	μs

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