

isc Silicon NPN Power Transistor

2SC4138

DESCRIPTION

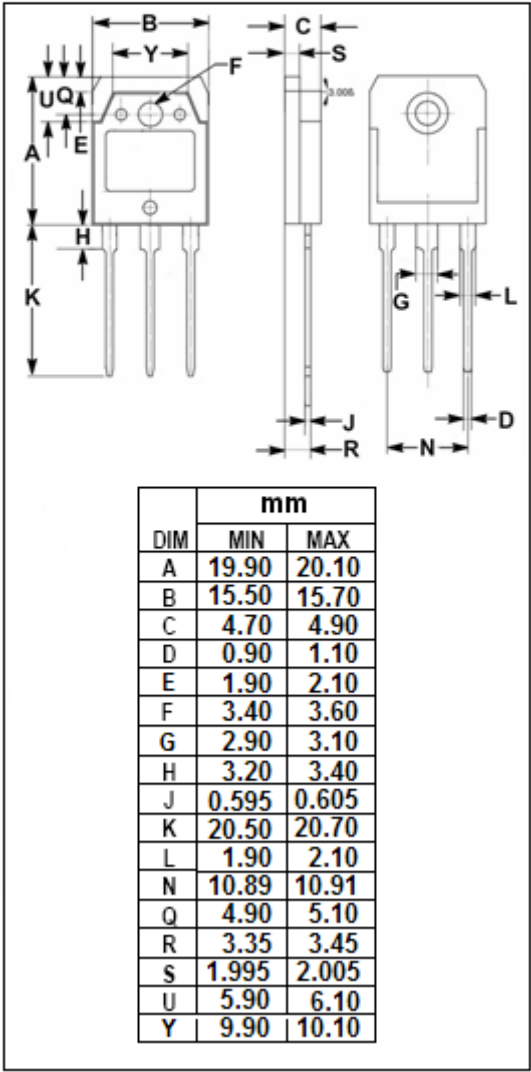
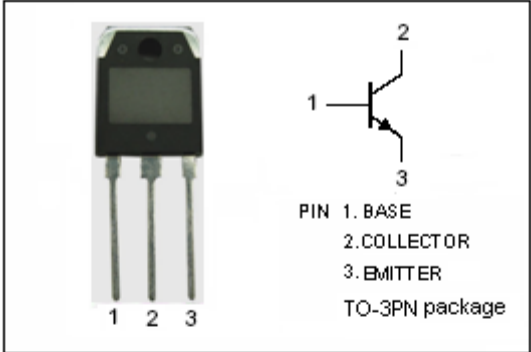
- High Collector-Emitter Breakdown Voltage-
: $V_{(BR)CEO} = 400V(\text{Min})$
- High Switching Speed
- High Reliability

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	10	A
I_{CM}	Collector Current-Peak	20	A
I_B	Base Current-Continuous	4	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	$^{\circ}\text{C}$



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ELECTRICAL CHARACTERISTICS

 $T_C=25^{\circ}\text{C}$ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	$I_C=25\text{mA}$; $I_B=0$	400			V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=6\text{A}$; $I_B=1.2\text{A}$			0.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=6\text{A}$; $I_B=1.2\text{A}$			1.3	V
I_{CBO}	Collector Cutoff Current	$V_{CB}=500\text{V}$; $I_E=0$			0.1	mA
I_{EBO}	Emitter Cutoff Current	$V_{EB}=10\text{V}$; $I_C=0$			0.1	mA
h_{FE}	DC Current Gain	$I_C=6\text{A}$; $V_{CE}=4\text{V}$	10		30	
C_{OB}	Output Capacitance	$I_E=0$; $V_{CB}=10\text{V}$; $f_{test}=1.0\text{MHz}$		85		pF
f_T	Current-Gain—Bandwidth Product	$I_E=-0.7\text{A}$; $V_{CE}=12\text{V}$		10		MHz

Switching Times

t_{on}	Turn-on Time	$I_C=6\text{A}$, $I_{B1}=0.6\text{A}$; $I_{B2}=-1.2\text{A}$ $R_L=33.3\Omega$; $V_{CC}=200\text{V}$			1.0	μs
t_{stg}	Storage Time				3.0	μs
t_f	Fall Time				0.5	μs