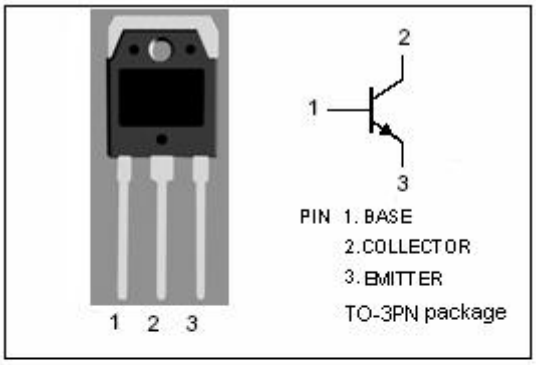
isc Silicon NPN Power Transistor — 2SC4138

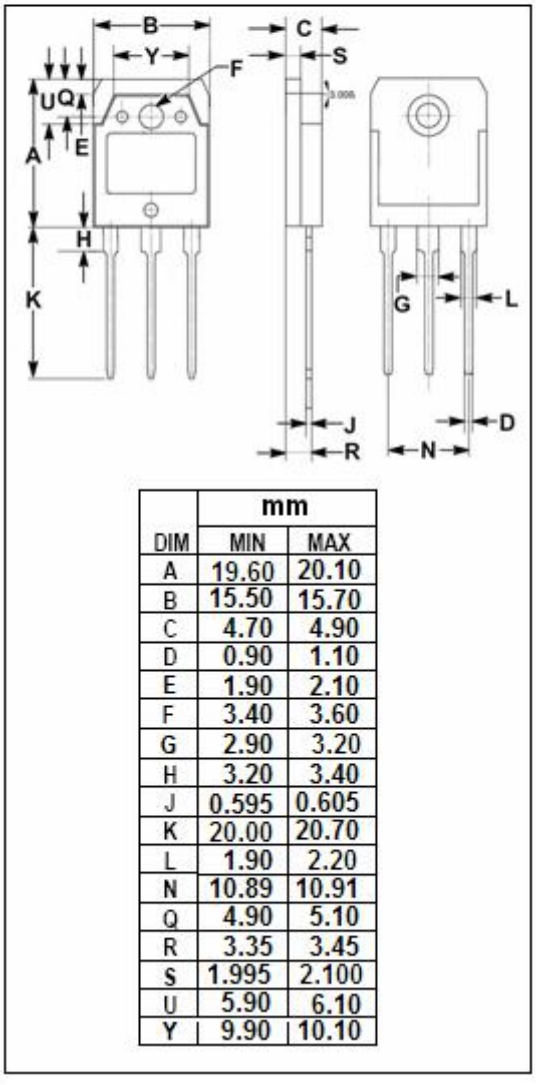


DESCRIPTION

- High Collector-Emitter Breakdown Voltage-
  : $V_{(BR)CEO}$= 400V(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.



DIM	mm MIN	mm MAX
A	19.60	20.10
B	15.50	15.70
C	4.70	4.90
D	0.90	1.10
E	1.90	2.10
F	3.40	3.60
G	2.90	3.20
H	3.20	3.40
J	0.595	0.605
K	20.00	20.70
L	1.90	2.20
N	10.89	10.91
Q	4.90	5.10
R	3.35	3.45
S	1.995	2.100
U	5.90	6.10
Y	9.90	10.10

ABSOLUTE MAXIMUM RATINGS(T_a=25℃)

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(Pulse)	20	A
I_B	Base Current-Continuous	4	A
P_C	Collector Power Dissipation @ T_C=25℃	80	W
T_J	Junction Temperature	150	℃
T_{stg}	Storage Temperature Range	-55~150	℃

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ELECTRICAL CHARACTERISTICS

T_C=25℃ 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= 6A; I_B= 1.2A			0.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	I_C= 6A; I_B= 1.2A			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= 6A ; 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= -0.7A ; V_{CE}= 12V		10		MHz
Switching Times						
t_{on}	Turn-on Time	I_C= 6A,I_{B1}= 0.6A; I_{B2}= -1.2A R_L= 33.3Ω ; V_{CC}= 200V			1.0	μs
t_{stg}	Storage Time				3.0	μs
t_f	Fall Time				0.5	μs

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