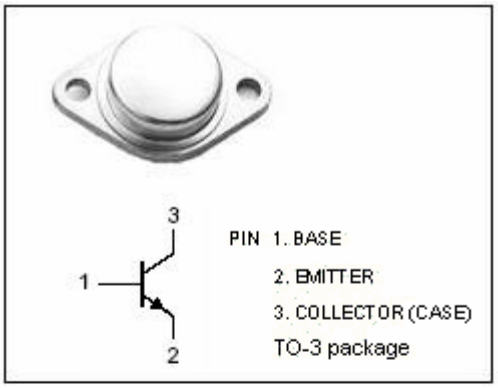
isc Silicon NPN Power Transistor MJ13330

DESCRIPTION

- Collector-Emitter Sustaining Voltage-
  : $V_{CEO(SUS)}$ = 200V(Min)
- High Switching Speed

APPLICATIONS

- Designed for high-voltage ,high-speed, power switching in inductive circuits where fall time is critical. They are particularly suited for line operated switch-mode applications.
  Typical applications:
- Switching regulators
- Inverters
- Solenoid and relay drivers
- Motor controls
- Deflection circuits

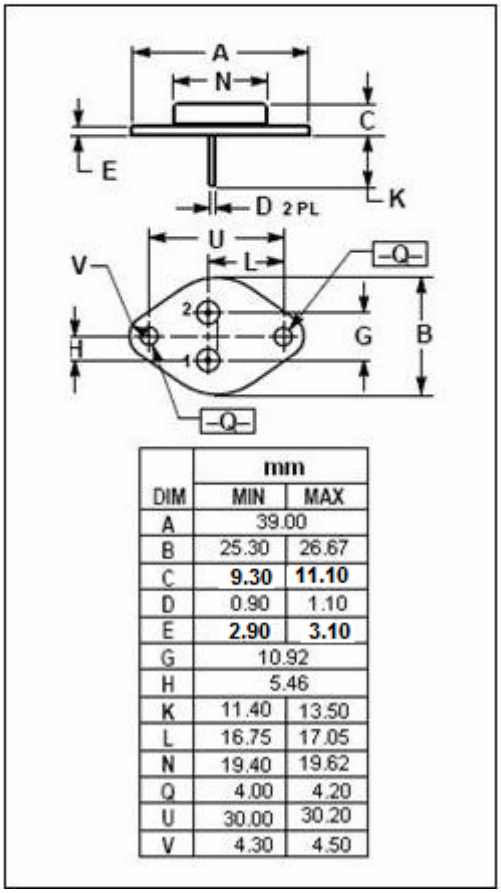


ABSOLUTE MAXIMUM RATINGS(T_a=25℃)

SYMBOL	PARAMETER	VALUE	UNIT
V_{CEV}	Collector-Emitter Voltage	400	V
V_{CEO}	Collector-Emitter Voltage	200	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current-Continuous	20	A
I_{CM}	Collector Current-Peak	30	A
I_B	Base Current-Continuous	10	A
I_{BM}	Base Current-Peak	20	A
P_C	Collector Power Dissipation@T_C=25℃	175	W
T_J	Junction Temperature	200	℃
T_{stg}	Storage Temperature	-65~200	℃

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j\text{-}c}$	Thermal Resistance,Junction to Case	1.0	℃/W



DIM	mm MIN	MAX
A	39.00	
B	25.30	26.67
C	9.30	11.10
D	0.90	1.10
E	2.90	3.10
G	10.92	
H	5.46	
K	11.40	13.50
L	16.75	17.05
N	19.40	19.62
Q	4.00	4.20
U	30.00	30.20
V	4.30	4.50

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ELECTRICAL CHARACTERISTICS

T_C=25℃ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage	I_C=100mA ; I_B=0	200			V
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage	I_C= 10A; I_B= 1.5A I_C= 10A; I_B= 1.8A,T_C=100℃			1.5 2.5	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage	I_C= 20A; I_B= 5A			3.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	I_C= 10A; I_B= 1.5A I_C= 10A; I_B= 1.8A,T_C=100℃			1.8 1.8	V
I_{CEV}	Collector Cutoff Current	V_{CEV}=400V;$V_{BE(off)}$=1.5V V_{CEV}=400V;$V_{BE(off)}$=1.5V;T_C=150℃			0.25 5.0	mA
I_{CER}	Collector Cutoff Current	V_{CE}= 400V; R_{BE}= 50Ω,T_C= 100℃			5.0	mA
I_{EBO}	Emitter Cutoff Current	V_{EB}= 6V; I_C=0			0.5	mA
h_{FE-1}	DC Current Gain	I_C= 5A ; V_{CE}= 5V	15		75	
h_{FE-2}	DC Current Gain	I_C= 10A ; V_{CE}= 5V	8			
f_T	Current Gain-Bandwidth Product	I_C= 0.3A ;V_{CE}= 10V; f_{test}=1MHz	5		40	
C_{OB}	Output Capacitance	I_E= 0; V_{CB}= 10V; f_{test}=100kHz	100		400	pF
Switching times;Resistive Load						
t_d	Delay Time	I_C= 10A , V_{CC}= 175V; I_{B1}= 1.5A $V_{BE(off)}$= 5V; t_p= 50μs; Duty Cycle≤2.0%		0.08	0.2	μs
t_r	Rise Time			0.55	1.0	μs
t_s	Storage Time			0.7	3.5	μs
t_f	Fall Time			0.11	0.7	μs