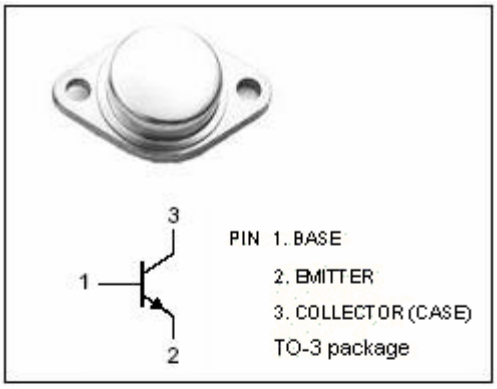
isc Silicon NPN Power Transistors MJ13070/13071

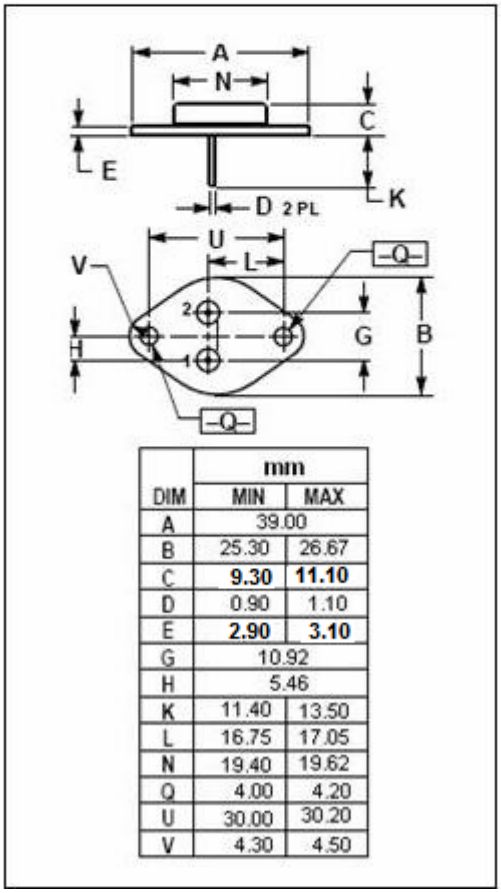
DESCRIPTION

- Collector-Emitter Sustaining Voltage-
  : $V_{CEO(SUS)}$ = 400V(Min)—MJ13070
  = 450V(Min)—MJ13071
- 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





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

ABSOLUTE MAXIMUM RATINGS(T_a=25℃)

SYMBOL	PARAMETER		VALUE	UNIT
V_{CEV}	Collector-Emitter Voltage	MJ13070	650	V
		MJ13071	750	
$V_{CEO(SUS)}$	Collector-Emitter Voltage	MJ13070	400	V
		MJ13071	450	
V_{EBO}	Emitter-Base Voltage		6	V
I_C	Collector Current-Continuous		5	A
I_{CM}	Collector Current-Peak		8	A
I_B	Base Current-Continuous		2	A
I_{BM}	Base Current-Peak		4	A
P_C	Collector Power Dissipation@T_C=25℃		125	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	1.4	℃/W

isc Silicon NPN Power Transistors MJ13070/13071

ELECTRICAL CHARACTERISTICS

T_C=25℃ unless otherwise specified

SYMBOL	PARAMETER		CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage	MJ13070	I_C=100mA ; I_B=0	400			V
		MJ13071		450			
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage		I_C= 3A; I_B= 0.6A I_C= 3A; I_B= 0.6A;T_C=100℃			1.0 2.0	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage		I_C= 5A; I_B= 1A			3.0	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage		I_C= 3A; I_B= 0.6A I_C= 3A; I_B= 0.6A;T_C=100℃			1.5 1.5	V
I_{CEV}	Collector Cutoff Current	MJ13070	V_{CEV}=650V;$V_{BE(off)}$=1.5V V_{CEV}=650V;$V_{BE(off)}$=1.5V;T_C=100℃			0.5 2.5	mA
		MJ13071	V_{CEV}=750V;$V_{BE(off)}$=1.5V V_{CEV}=750V;$V_{BE(off)}$=1.5V;T_C=100℃			0.5 2.5	
I_{CER}	Collector Cutoff Current	MJ13070	V_{CE}= 650V; R_{BE}= 50Ω,T_C= 100℃			3.0	mA
		MJ13071	V_{CE}= 750V; R_{BE}= 50Ω,T_C= 100℃			3.0	
I_{EBO}	Emitter Cutoff Current		V_{EB}= 6V; I_C=0			1.0	mA
h_{FE}	DC Current Gain		I_C= 3A ; V_{CE}= 5V	8			
C_{OB}	Output Capacitance		I_E= 0; V_{CB}= 10V; f_{test}=1.0kHz			250	pF

Switching times;Resistive Load

t_d	Delay Time	I_C= 3A , V_{CC}= 250V; I_{B1}= 0.4A;t_p= 30μs; $V_{BE(off)}$= 5V Duty Cycle≤2.0%		30	50	ns
t_r	Rise Time			100	400	ns
t_s	Storage Time			400	1500	ns
t_f	Fall Time			175	500	ns