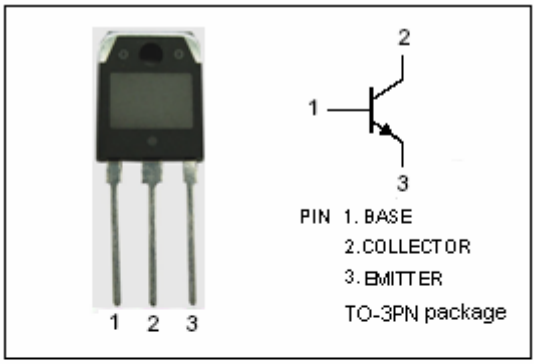
isc Silicon NPN Power Transistors MJH13090/13091

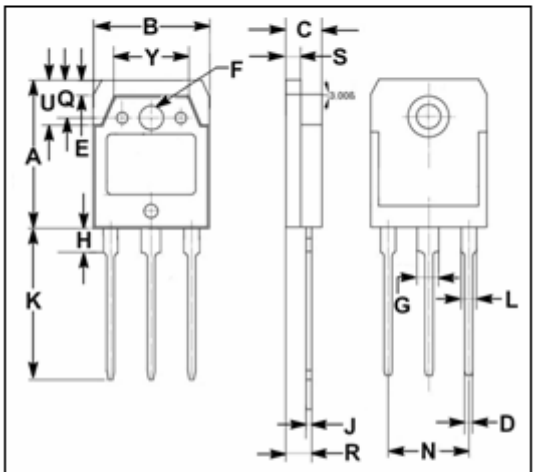
DESCRIPTION

- Collector-Emitter Sustaining Voltage-
  : $V_{CEO(SUS)}$ = 400V(Min)—MJH13090
  = 450V(Min)—MJH13091
- 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	19.90	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	3.10
H	3.20	3.40
J	0.595	0.605
K	20.50	20.70
L	1.90	2.10
N	10.89	10.91
Q	4.90	5.10
R	3.35	3.45
S	1.995	2.005
U	5.90	6.10
Y	9.90	10.10

ABSOLUTE MAXIMUM RATINGS(T_a=25℃)

SYMBOL	PARAMETER		VALUE	UNIT
V_{CEV}	Collector-Emitter Voltage	MJH13090	650	V
		MJH13091	750	
$V_{CEO(SUS)}$	Collector-Emitter Voltage	MJH13090	400	V
		MJH13091	450	
V_{EBO}	Emitter-Base Voltage		6	V
I_C	Collector Current-Continuous		15	A
I_{CM}	Collector Current-Peak		20	A
I_B	Base Current-Continuous		5	A
I_{BM}	Base Current-Peak		10	A
P_C	Collector Power Dissipation @T_C=25℃		125	W
T_J	Junction Temperature		150	℃
T_{stg}	Storage Temperature		-65~150	℃

THERMAL CHARACTERISTICS

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

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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	MJH13090	I_C=100mA ; I_B=0	400			V
		MJH13091		450			
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage		I_C= 10A; I_B= 2A I_C= 10A; I_B= 2A;T_C=100℃			1.0 2.0	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage		I_C= 15A; I_B= 3A			3.0	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage		I_C= 10A; I_B= 2A I_C= 10A; I_B= 2A;T_C=100℃			1.5 1.5	V
I_{CEV}	Collector Cutoff Current	MJH13090	V_{CEV}=650V;$V_{BE(off)}$=1.5V V_{CEV}=650V;$V_{BE(off)}$=1.5V;T_C=100℃			0.5 2.5	mA
		MJH13091	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	MJH13090	V_{CE}= 650V; R_{BE}= 50Ω,T_C= 100℃			3.0	mA
		MJH13091	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= 10A ; V_{CE}= 3V	8			
C_{OB}	Output Capacitance		I_E= 0; V_{CB}= 10V; f_{test}=1.0kHz			350	pF

Switching times;Resistive Load

t_d	Delay Time	I_C= 10A , V_{CC}= 250V; I_{B1}= 1.25A;t_p= 30μs; $V_{BE(off)}$= 5V Duty Cycle≤2.0%		30	50	ns
t_r	Rise Time			130	500	ns
t_s	Storage Time			550	2500	ns
t_f	Fall Time			100	500	ns