

isc Silicon NPN Power Transistors

MJH13090/13091

DESCRIPTION

- Collector-Emitter Sustaining Voltage-
: $V_{CEO(SUS)} = 400V(\text{Min})$ —MJH13090
= $450V(\text{Min})$ —MJH13091
- High Switching Speed
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

APPLICATIONS

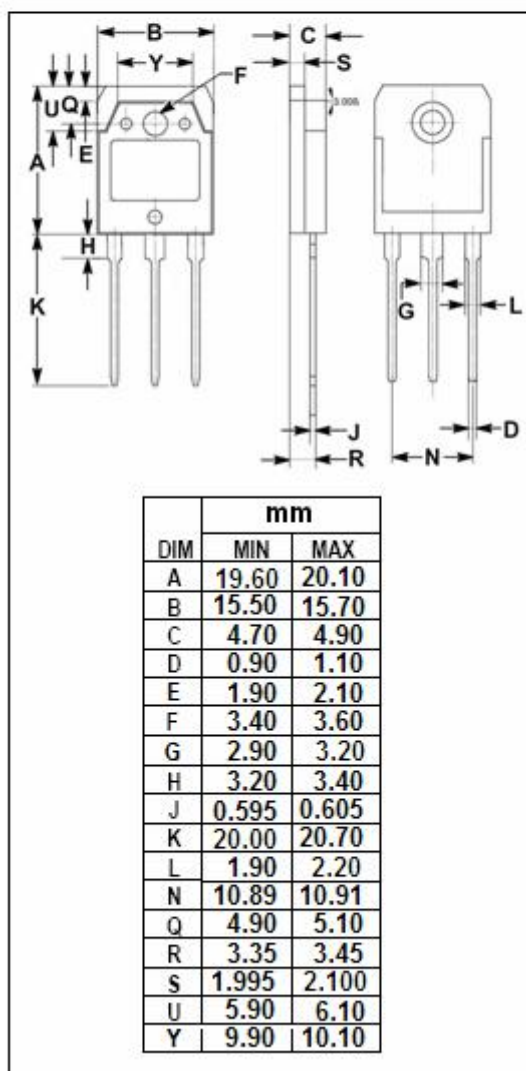
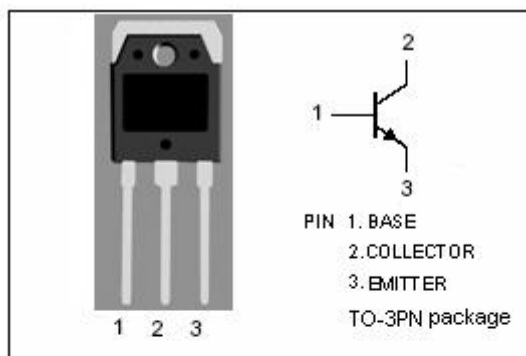
- Designed for high-voltage ,high-speed, power switching in inductive circuits where fall time is critical. They are particularly suited for line operated switch-mode applications.

ABSOLUTE MAXIMUM RATINGS($T_a=25^\circ\text{C}$)

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 @ $T_c=25^\circ\text{C}$		125	W
T_J	Junction Temperature		150	$^\circ\text{C}$
T_{stg}	Storage Temperature		-65~150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

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



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ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER		CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage	MJH13090	$I_C=30\text{mA}; I_B=0$	400			V
		MJH13091		450			
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage		$I_C=10\text{A}; I_B=2\text{A}$ $I_C=10\text{A}; I_B=2\text{A}; T_C=100^{\circ}\text{C}$			1.0 2.0	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage		$I_C=15\text{A}; I_B=3\text{A}$			3.0	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage		$I_C=10\text{A}; I_B=2\text{A}$ $I_C=10\text{A}; I_B=2\text{A}; T_C=100^{\circ}\text{C}$			1.5 1.5	V
I_{CBO}	Collector Cutoff Current	MJH13090	$V_{CEV}=650\text{V}; I_E=0$ $V_{CEV}=650\text{V}; I_E=0; T_C=100^{\circ}\text{C}$			0.5 2.5	mA
		MJH13091	$V_{CEV}=750\text{V}; V_{BE(off)}=1.5\text{V}$ $V_{CEV}=750\text{V}; V_{BE(off)}=1.5\text{V}; T_C=100^{\circ}\text{C}$			0.5 2.5	
I_{EBO}	Emitter Cutoff Current		$V_{EB}=6\text{V}; I_C=0$			1.0	mA
h_{FE}	DC Current Gain		$I_C=10\text{A}; V_{CE}=3\text{V}$	8			

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