

isc Silicon NPN Power Transistors
MJ13090/13091
DESCRIPTION

- Collector-Emitter Sustaining Voltage-
: $V_{CEO(SUS)} = 400V(\text{Min})$ —MJ13090
= $450V(\text{Min})$ —MJ13091
- High Switching Speed
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

APPLICATIONS

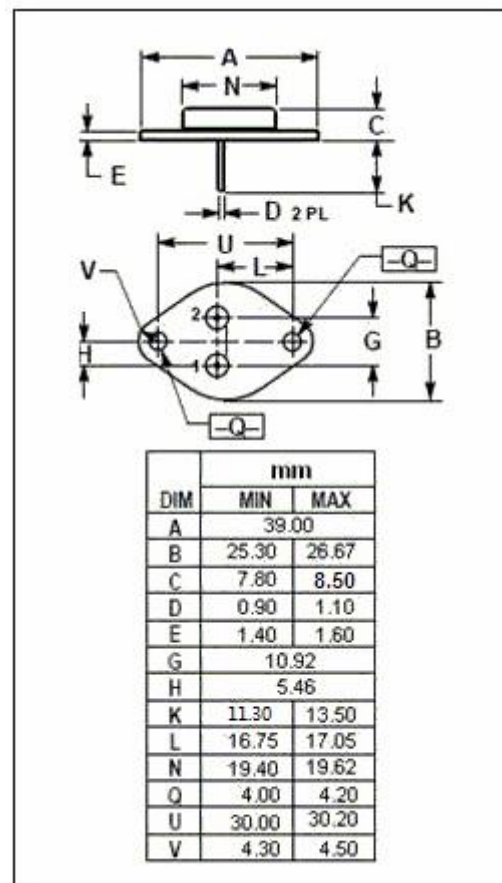
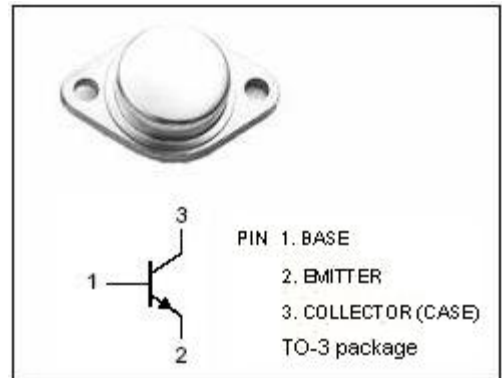
- Designed for high-voltage ,high-speed, power switching in inductive circuits where fall time is critical. They are particularly suited for line operated switch-mode applications.
Typical applications:
- Switching regulators
- Inverters
- Solenoid and relay drivers
- Motor controls
- Deflection circuits

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector- Base Voltage	MJ13090	650
		MJ13091	750
$V_{CEO(SUS)}$	Collector-Emitter Voltage	MJ13090	400
		MJ13091	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@ $T_c=25^\circ\text{C}$	175	W
T_J	Junction Temperature	200	$^\circ\text{C}$
T_{stg}	Storage Temperature	-65~200	$^\circ\text{C}$

THERMAL CHARACTERISTICS

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



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ELECTRICAL CHARACTERISTICS

T_C=25°C unless otherwise specified

SYMBOL	PARAMETER		CONDITIONS	MIN	TYP.	MAX	UNIT
V _{CEO(SUS)}	Collector-Emitter Sustaining Voltage	MJ13090	I _C =50mA ; I _B =0	400			V
		MJ13091					
V _{CE(sat)-1}	Collector-Emitter Saturation Voltage		I _C = 10A; I _B = 2A I _C = 10A; I _B = 2A; T _C =100°C			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°C			1.5 1.5	V
I _{CBO}	Collector Cutoff Current	MJ13090	V _{CB} =650V; I _E =0 V _{CB} =650V; I _E =0; T _C =100°C			0.5 2.5	mA
		MJ13091	V _{CB} =750V; I _E =0 V _{CB} =750V; I _E =0; T _C =100°C			0.5 2.5	
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

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