

isc Silicon NPN Power Transistors

MJ13100/13101

DESCRIPTION

- Collector-Emitter Sustaining Voltage-
: $V_{CEO(SUS)} = 400V(\text{Min})$ —MJ13100
= $450V(\text{Min})$ —MJ13101
- High Switching Speed
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

APPLICATIONS

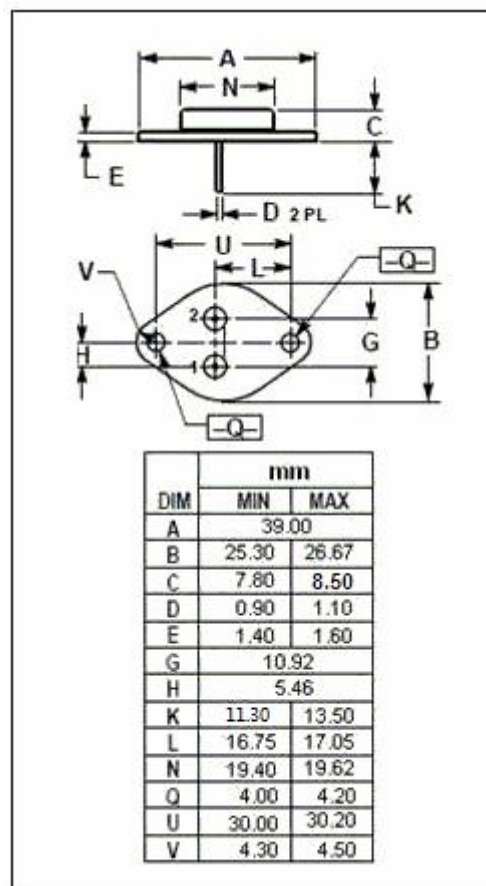
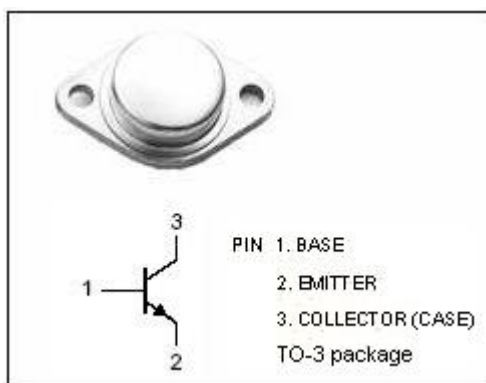
- Switching regulators
- Inverters
- Solenoid and relay drivers
- Motor controls
- Deflection circuits

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CEV}	Collector-Emitter Voltage	MJ13100	V
		MJ13101	
$V_{CEO(SUS)}$	Collector-Emitter Voltage	MJ13100	V
		MJ13101	
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current-Continuous	20	A
I_{CM}	Collector Current-Peak	50	A
I_B	Base Current-Continuous	10	A
I_{BM}	Base Current-Peak	15	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	$^\circ\text{C/W}$



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ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER		CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{CE(SUS)}$	Collector-Emitter Sustaining Voltage	MJ13100	$I_C=50\text{mA}$; $I_B=0$	400			V
		MJ13101		450			
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage		$I_C=15\text{A}$; $I_B=3\text{A}$ $I_C=15\text{A}$; $I_B=3\text{A}$; $T_C=100^{\circ}\text{C}$			1.0 2.0	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage		$I_C=20\text{A}$; $I_B=4\text{A}$			3.0	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage		$I_C=15\text{A}$; $I_B=3\text{A}$ $I_C=15\text{A}$; $I_B=3\text{A}$; $T_C=100^{\circ}\text{C}$			1.5 1.5	V
I_{CBO}	Collector Cutoff Current	MJ13100	$V_{CBO}=650\text{V}$; $I_E=0$ $V_{CBO}=650\text{V}$; $I_E=0$; $T_C=100^{\circ}\text{C}$			0.5 2.5	mA
		MJ13101	$V_{CBO}=750\text{V}$; $I_E=0$ $V_{CBO}=750\text{V}$; $I_E=0$; $T_C=100^{\circ}\text{C}$			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		$I_C=15\text{A}$; $V_{CE}=3\text{V}$	8		40	

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