

# isc Silicon NPN Power Transistor

**MJ12020**

## DESCRIPTION

- Collector-Emitter Sustaining Voltage-  
:  $V_{CEO(SUS)} = 450V(\text{Min})$
- Fast Turn-Off Time
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

## APPLICATIONS

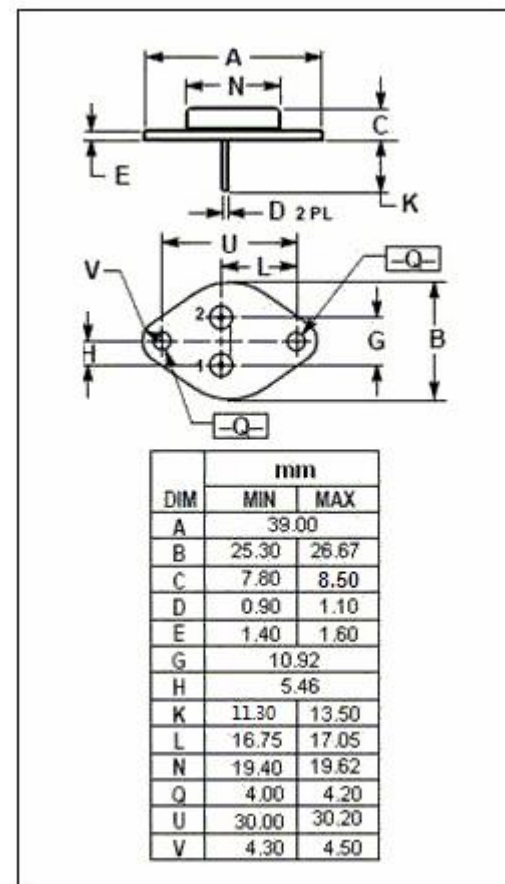
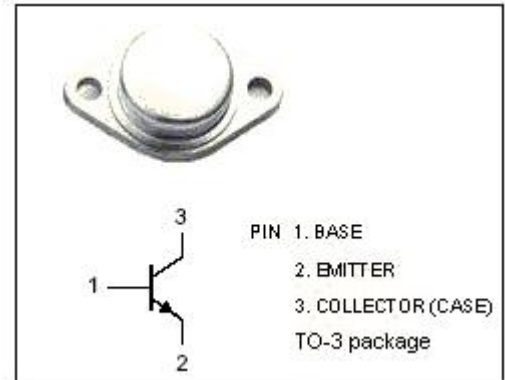
- Designed for high resolution video systems, such as : high density graphic displays, data terminals, video scanners.

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

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CEV}$	Collector-Emitter Voltage	850	V
$V_{CEO(SUS)}$	Collector-Emitter Voltage	450	V
$V_{EBO}$	Emitter-Base Voltage	6	V
$I_C$	Collector Current-Continuous	5	A
$I_{CM}$	Collector Current-Peak	10	A
$I_B$	Base Current-Continuous	4	A
$I_{BM}$	Base Current-Peak	8	A
$P_C$	Collector Power Dissipation@ $T_C=25^\circ\text{C}$	125	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	1.4	$^\circ\text{C/W}$



**isc Silicon NPN Power Transistor****MJ12020****ELECTRICAL CHARACTERISTICS****T<sub>C</sub>=25°C unless otherwise specified**

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V <sub>CEQ(SUS)</sub>	Collector-Emitter Sustaining Voltage	I <sub>C</sub> =30mA ; I <sub>B</sub> =0	450			V
V <sub>CE(sat)</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 3A; I <sub>B</sub> = 0.6A			1.2	V
V <sub>BE(sat)</sub>	Base-Emitter Saturation Voltage	I <sub>C</sub> = 3A; I <sub>B</sub> = 0.6A			1.5	V
I <sub>CBO</sub>	Collector Cutoff Current	V <sub>CB</sub> =850V; I <sub>E</sub> =0 V <sub>CB</sub> =850V; I <sub>E</sub> =0; T <sub>C</sub> =100°C			0.25 1.5	mA
I <sub>EBO</sub>	Emitter Cutoff Current	V <sub>EB</sub> = 6V; I <sub>C</sub> =0			1.0	mA
h <sub>FE</sub>	DC Current Gain	I <sub>C</sub> = 5A ; V <sub>CE</sub> = 5V	5			
f <sub>T</sub>	Current-Gain—Bandwidth Product	I <sub>C</sub> = 0.3A; V <sub>CE</sub> = 10V; f <sub>test</sub> =1MHz	15			MHz
C <sub>OB</sub>	Output Capacitance	I <sub>E</sub> = 0; V <sub>CB</sub> = 10V; f <sub>test</sub> =1kHz		200		pF
Switching times; Inductive Load						
t <sub>s</sub>	Storage Time	I <sub>C</sub> = 3A , V <sub>CC</sub> = 40V; I <sub>B1</sub> = 0.6A; PW= 8 μ s; V <sub>BE(off)</sub> = 4V Duty Cycle ≤ 2.0%		440		ns
t <sub>f</sub>	Fall Time			130		ns

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