

**isc Silicon NPN Power Transistor****MJ8504****DESCRIPTION**

- Collector-Emitter Sustaining Voltage-  
:  $V_{CEO(SUS)} = 700V(\text{Min})$
- 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:

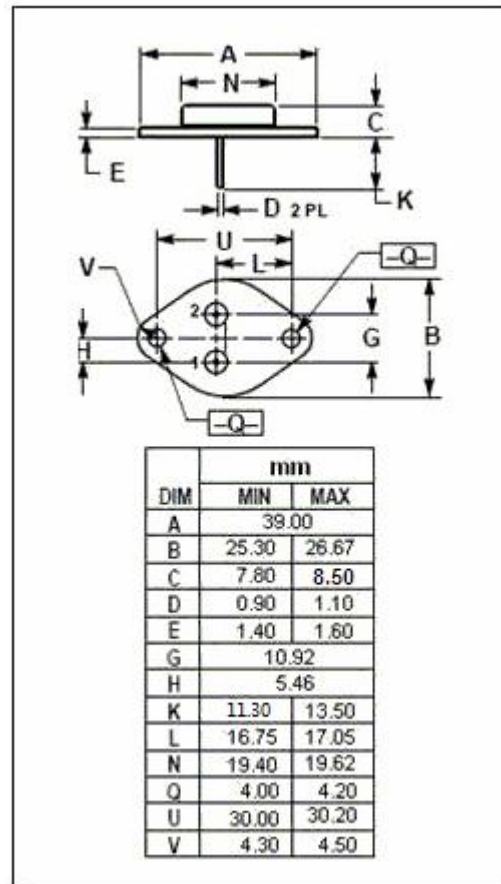
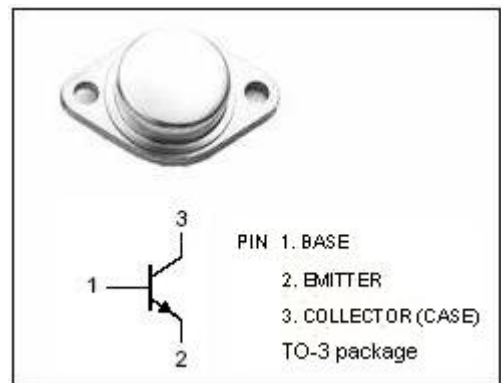
- Switching regulators
- Inverters
- Solenoid and relay drivers
- Motor controls
- Deflection circuits

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

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CEV}$	Collector-Emitter Voltage	1200	V
$V_{CEO(SUS)}$	Collector-Emitter Voltage	700	V
$V_{EBO}$	Emitter-Base Voltage	8	V
$I_C$	Collector Current-Continuous	10	A
$I_{CM}$	Collector Current-Peak	15	A
$I_B$	Base Current-Continuous	8	A
$I_{BM}$	Base Current-Peak	12	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	$^\circ\text{C/W}$



**isc Silicon NPN Power Transistor****MJ8504****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> =100mA ; I <sub>B</sub> =0	700			V
V <sub>CE(sat)-1</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 5A; I <sub>B</sub> = 2A			2.0	V
V <sub>CE(sat)-2</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 10A; I <sub>B</sub> = 4A			5.0	V
V <sub>BE(sat)</sub>	Base-Emitter Saturation Voltage	I <sub>C</sub> = 5A; I <sub>B</sub> = 2A			1.5	V
I <sub>CBO</sub>	Collector Cutoff Current	V <sub>CB0</sub> =1200V; I <sub>E</sub> =0, T <sub>C</sub> =150°C			0.25	mA
I <sub>EBO</sub>	Emitter Cutoff Current	V <sub>EB</sub> = 7.0V; I <sub>C</sub> =0			1.0	mA
h <sub>FE</sub>	DC Current Gain	I <sub>C</sub> = 1.5A ; V <sub>CE</sub> = 5V	7.5			
C <sub>OB</sub>	Output Capacitance	I <sub>E</sub> = 0; V <sub>CB</sub> = 10V; f <sub>test</sub> =1.0kHz	90			pF

Switching times;Resistive Load

t <sub>d</sub>	Delay Time	I <sub>C</sub> = 5A , V <sub>CC</sub> = 500V; I <sub>B1</sub> = 2A;t <sub>p</sub> = 50 μ s; V <sub>BE(off)</sub> = 5V Duty Cycle≤2.0%		50	200	ns
t <sub>r</sub>	Rise Time			175	2000	ns
t <sub>s</sub>	Storage Time			1250	4000	ns
t <sub>f</sub>	Fall Time			600	2000	ns

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