

**isc Silicon NPN Power Transistor****MJ8505****DESCRIPTION**

- Collector-Emitter Sustaining Voltage-  
:  $V_{CEO(SUS)} = 800V(\text{Min})$
- 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:

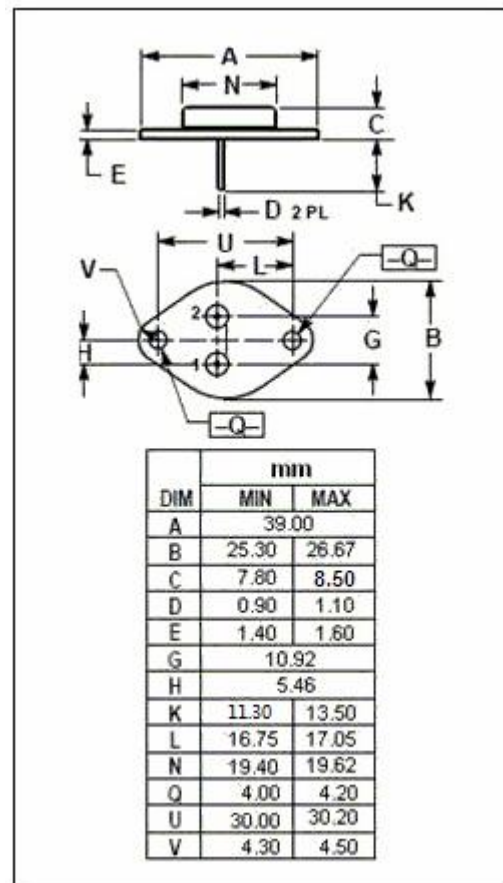
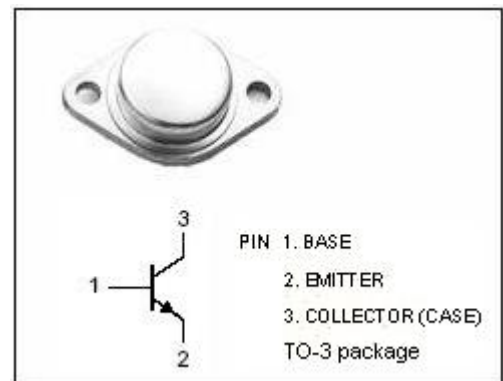
- Switching regulators
- Inverters
- Solenoid and relay drivers
- Motor controls
- Deflection circuits

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

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector- Base Voltage	1400	V
$V_{CEO(SUS)}$	Collector-Emitter Voltage	800	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** $T_C=25^{\circ}\text{C}$  unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{CEQ(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C=100\text{mA}$ ; $I_B=0$	800			V
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage	$I_C= 5\text{A}$ ; $I_B= 2\text{A}$			2.0	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage	$I_C= 10\text{A}$ ; $I_B= 4\text{A}$			5.0	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C= 5\text{A}$ ; $I_B= 2\text{A}$			1.5	V
$I_{CBO}$	Collector cut-off current	$V_{CBO}=1400\text{V}$ ; $I_E=0$ ; $T_C=150^{\circ}\text{C}$			0.25	mA
$I_{EBO}$	Emitter Cutoff Current	$V_{EB}= 7.0\text{V}$ ; $I_C=0$			1.0	mA
$h_{FE}$	DC Current Gain	$I_C= 1.5\text{A}$ ; $V_{CE}= 5\text{V}$	7.5			
$C_{OB}$	Output Capacitance	$I_E= 0$ ; $V_{CB}= 10\text{V}$ ; $f_{test}=1.0\text{kHz}$	90			pF

Switching times;Resistive Load

$t_d$	Delay Time	$I_C= 5\text{A}$ , $V_{CC}= 500\text{V}$ ; $I_{B1}= 2\text{A}$ ; $t_p= 50\text{ }\mu\text{s}$ ; $V_{BE(off)}= 5\text{V}$ Duty Cycle $\leq 2.0\%$		50	200	ns
$t_r$	Rise Time			175	2000	ns
$t_s$	Storage Time			1250	4000	ns
$t_f$	Fall Time			600	2000	ns

**NOTICE:**

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