

**Silicon NPN Power Transistors**

**MJ16012**

**DESCRIPTION**

- With TO-3 package
- High voltage ,high speed

**APPLICATIONS**

- Switching Regulators
- Inverters
- Solenoids
- Relay Drivers
- Motor Controls
- Deflection Circuits

**PINNING (see Fig.2)**

PIN	DESCRIPTION
1	Base
2	Emitter
3	Collector

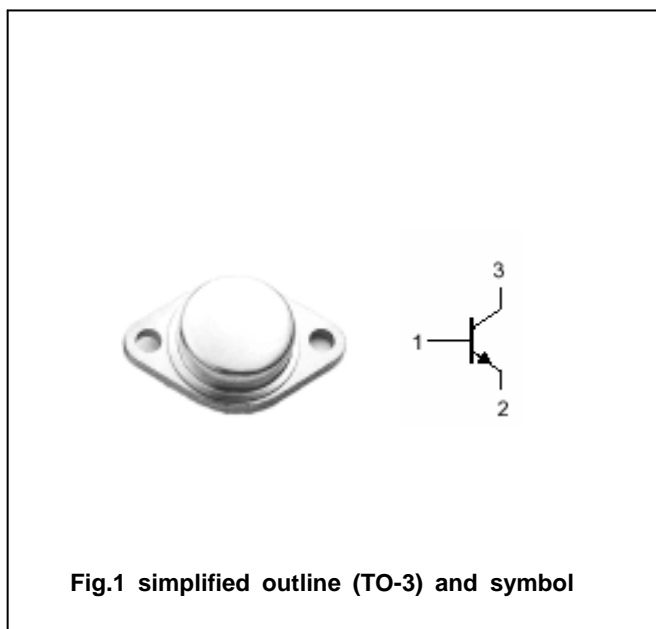


Fig.1 simplified outline (TO-3) and symbol

**Absolute maximum ratings(Ta= )**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$V_{CBO}$	Collector-base voltage	Open emitter	850	V
$V_{CEO}$	Collector-emitter voltage	Open base	450	V
$V_{EBO}$	Emitter-base voltage	Open collector	6	V
$I_C$	Collector current		15	A
$I_{CM}$	Collector current-peak		20	A
$I_B$	Base current		10	A
$I_{BM}$	Base current-peak		15	A
$P_D$	Total Power Dissipation Derate above 25	$T_C=25$	175 1.0	W W/
$T_j$	Junction temperature		150	
$T_{stg}$	Storage temperature		-65~200	

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	VALUE	UNIT
$R_{th\ j-c}$	Thermal resistance junction to case	1.0	/W

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## CHARACTERISTICS

T<sub>j</sub>=25 unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V <sub>CEQ(SUS)</sub>	Collector-emitter sustaining voltage	I <sub>C</sub> =0.1A ; I <sub>B</sub> =0	450			V
V <sub>CEsat-1</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =5A; I <sub>B</sub> =0.7A			2.5	V
V <sub>CEsat-2</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =10A ; I <sub>B</sub> =1.3A T <sub>C</sub> =100			3.0 3.0	V
V <sub>BESat</sub>	Base-emitter saturation voltage	I <sub>C</sub> =10A ; I <sub>B</sub> =1.3A T <sub>C</sub> =100			1.5 1.5	V
I <sub>CER</sub>	Collector cut-off current	V <sub>CE</sub> =850V; R <sub>BE</sub> =50 ; T <sub>C</sub> =100			2.5	mA
I <sub>CEV</sub>	Collector cut-off current	V <sub>CE</sub> =850V; V <sub>BE(off)</sub> =1.5V T <sub>C</sub> =100			0.25 1.5	mA
I <sub>EBO</sub>	Emitter cut-off current	V <sub>EB</sub> =6V; I <sub>C</sub> =0			10	mA
h <sub>FE</sub>	DC current gain	I <sub>C</sub> =15A ; V <sub>CE</sub> =5V	5			
C <sub>OB</sub>	Output capacitance	V <sub>CB</sub> =10V, I <sub>E</sub> =0; f=1.0KHz			400	pF

Switching times resistive load

t <sub>d</sub>	Delay time	I <sub>C</sub> =10A ; V <sub>CC</sub> =250V I <sub>B1</sub> =1.3A ; I <sub>B2</sub> =2.6A PW=30 μ s; R <sub>B2</sub> =1.6 Duty Cycle 2.0%		20		ns
t <sub>r</sub>	Rise time			200		ns
t <sub>s</sub>	Storage time			1200		ns
t <sub>f</sub>	Fall time			200		ns

PACKAGE OUTLINE

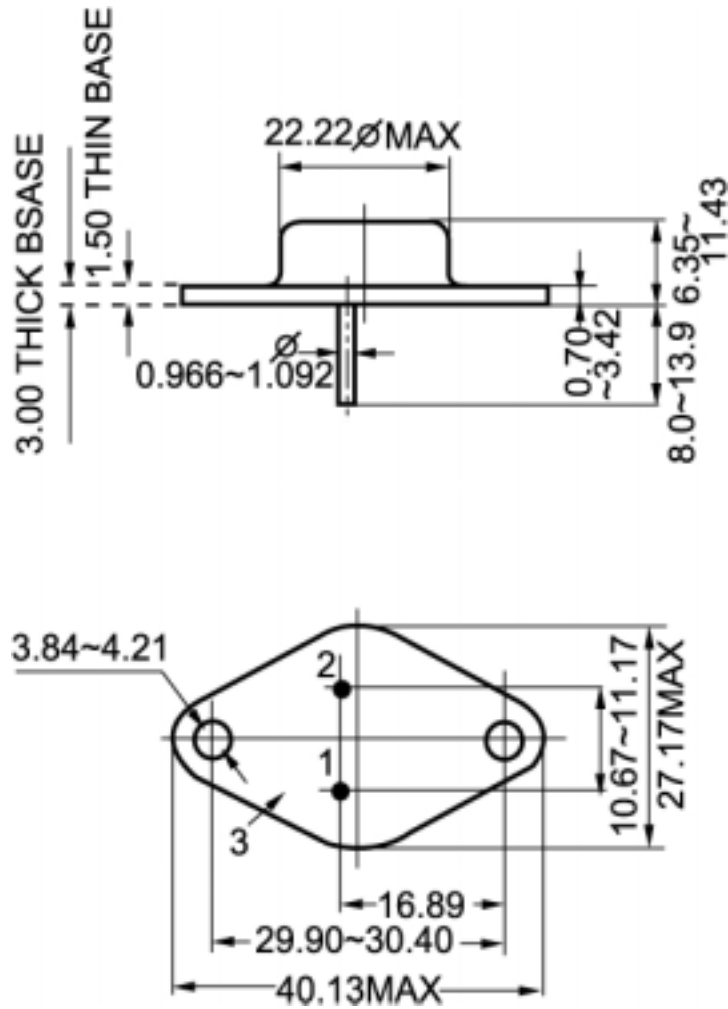


Fig.2 outline dimensions (unindicated tolerance:  $\pm 0.10\text{mm}$ )