

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($T_c=25^\circ\text{C}$)

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°C	$T_c=25^\circ\text{C}$	175 1.0	W W/ $^\circ\text{C}$
T_j	Junction temperature		150	$^\circ\text{C}$
T_{stg}	Storage temperature		-65~200	$^\circ\text{C}$

THERMAL CHARACTERISTICS

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

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CHARACTERISTICS

T_j=25°C unless otherwise specified

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SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V _{CEQ(SUS)}	Collector-emitter sustaining voltage	I _C =0.1A ; I _B =0	450			V
V _{CE(sat)-1}	Collector-emitter saturation voltage	I _C =5A; I _B =0.5A			2.5	V
V _{CE(sat)-2}	Collector-emitter saturation voltage	I _C =10A ; I _B =1.0A T _C =100°C			3.0 3.0	V
V _{BE(sat)}	Base-emitter saturation voltage	I _C =10A ; I _B =1.0A T _C =100°C			1.5 1.5	V
I _{CER}	Collector cut-off current	V _{CE} =850V; R _{BE} =50Ω; T _C =100°C			2.5	mA
I _{CEV}	Collector cut-off current	V _{CE} =850V; V _{BE(off)} =1.5V T _C =100°C			0.25 1.5	mA
I _{EBO}	Emitter cut-off current	V _{EB} =6V; I _C =0			10	mA
h _{FE}	DC current gain	I _C =15A ; V _{CE} =5V	7			
C _{OB}	Output capacitance	V _{CB} =10V, I _E =0; f=1.0KHz			400	pF

Switching times resistive load

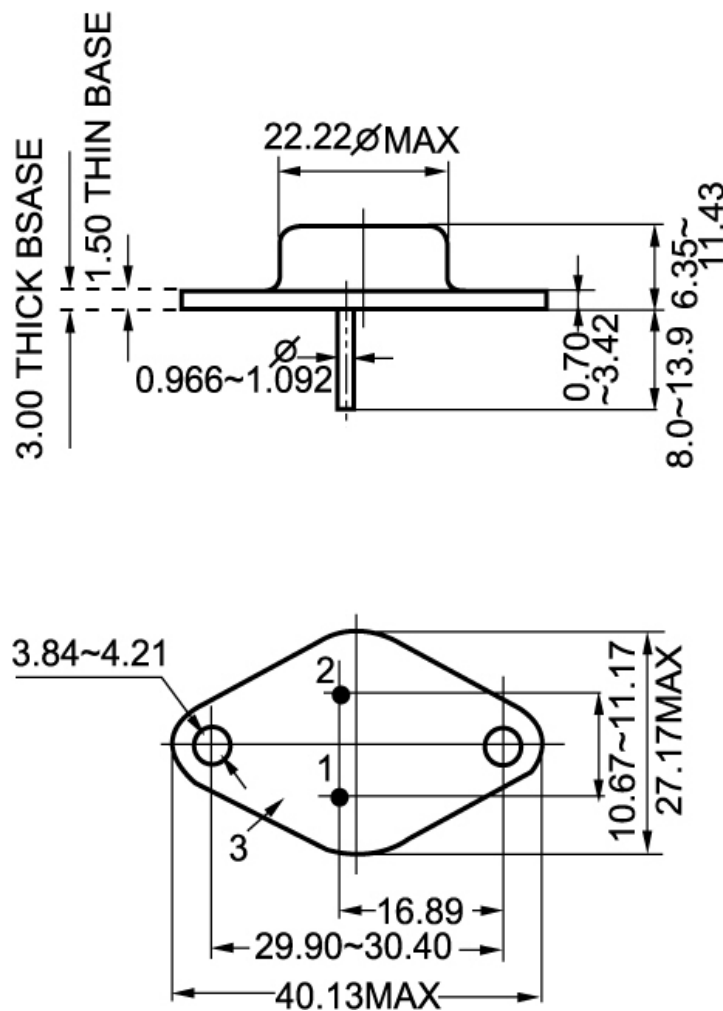
t _d	Delay time	I _C =10A ; V _{CC} =250V I _{B1} =1.0A ; I _{B2} =2.0A PW=30μs; R _{B2} =1.6Ω Duty Cycle≤2.0%		20		ns
t _r	Rise time			200		ns
t _s	Storage time			900		ns
t _f	Fall time			150		ns

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PACKAGE OUTLINE

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