

# MSKSEMI 美森科

SEMICONDUCTOR



ESD



TVS



TSS



MOV



GDT



PLED

## X0405-MS

Product specification

## FEATURES

- Glass-passivated mesa chip for reliability and uniform
- High current output up to 4.0 A

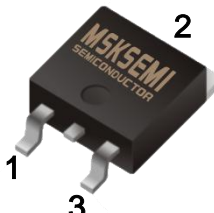
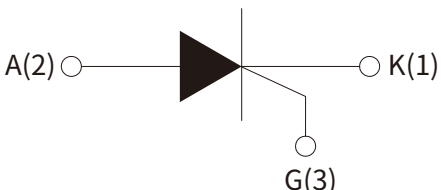
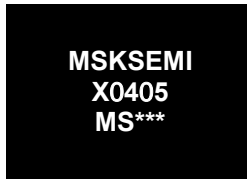
## APPLICATIONS

- Flash lamp
- Electronic ballast
- Igniter

## APPROVALS

- RoHS: Compliance with
- HF: Compliance with

## Reference News

TO-252	Schematic Symbol	MARKING
		

## ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Repetitive peak off-state voltage ( $T_j=25^{\circ}\text{C}$ )	$V_{\text{DRM}}$	600	V
Repetitive peak reverse voltage ( $T_j=25^{\circ}\text{C}$ )	$V_{\text{RRM}}$	600	
RMS on-state current( $T_c=85^{\circ}\text{C}$ )	$I_{\text{T(RMS)}}$	4	A
Non repetitive surge peak on-state current ( $t_p=10\text{ms}$ )	$I_{\text{TSM}}$	30	
$I^2t$ value for fusing ( $t_p=10\text{ms}$ )	$I^2t$	4.5	$\text{A}^2\text{S}$
Critical rate of rise of on-state current ( $I_G=2*I_{\text{GT}}$ )	$di/dt$	50	$\text{A}/\mu\text{s}$
Peak gate current	$I_{\text{GM}}$	1.2	A
Average gate power dissipation	$P_{\text{G(AV)}}$	0.2	W
Storage junction temperature range	$T_{\text{STG}}$	-40~+150	$^{\circ}\text{C}$
Operating junction temperature range	$T_j$	-40~+125	

**ELECTRICAL CHARACTERISTICS** ( $T_j=25^{\circ}\text{C}$  unless otherwise specified)

Symbol	Test Condition	Value			Unit
		Min.	Typ.	Max.	
$I_{GT}$	$V_D=12\text{V}, R_L=33\Omega$	-	50	200	$\mu\text{A}$
$V_{GT}$		-	0.6	0.8	V
$V_{GD}$	$V_D=V_{DRM}, R_L=3.3\text{K}\Omega, T_j=150^{\circ}\text{C}$	0.2	-	-	
$I_H$	$I_T=500\text{mA}$	-	-	5	mA
$I_L$	$I_G=1.2I_{GT}$	-	-	6	
$dV_D/dt$	$V_D=2/3V_{DRM}, R_{GK}=1\text{K}\Omega, T_j=125^{\circ}\text{C}$	10	-	-	$\text{V}/\mu\text{s}$

**STATIC CHARACTERISTICS**

Symbol	Parameter		Value	Unit
V <sub>TM</sub>	I <sub>TM</sub> =8A,tp=380μs	T <sub>j</sub> =25℃	≤1.5	V
I <sub>DRM</sub>	V <sub>D</sub> =V <sub>DRM</sub> ,    V <sub>R</sub> =V <sub>RRM</sub>		≤5	uA
I <sub>RRM</sub>		T <sub>j</sub> =125℃	≤100	uA

**THERMAL RESISTANCES**

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction to case(AC)	6.5	$^{\circ}\text{C}/\text{W}$
$R_{th(j-a)}$	Junction to ambient	70	$^{\circ}\text{C}/\text{W}$

## PARAMETER CHARACTERISTIC CURVE

FIG.1 Maximum power dissipation versus RMS on-state current

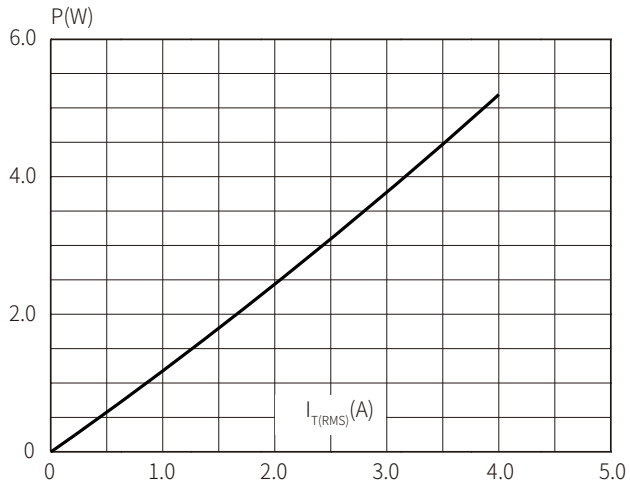


FIG.2: RMS on-state current versus ambient temperature (printed circuit board FR4, copper thickness:35 $\mu$ m)(full cycle)

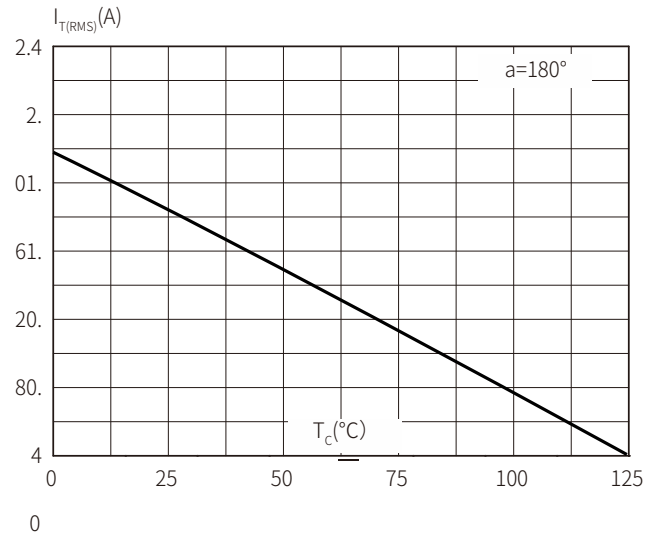


FIG.3: Surge peak on-state current versus number of cycles

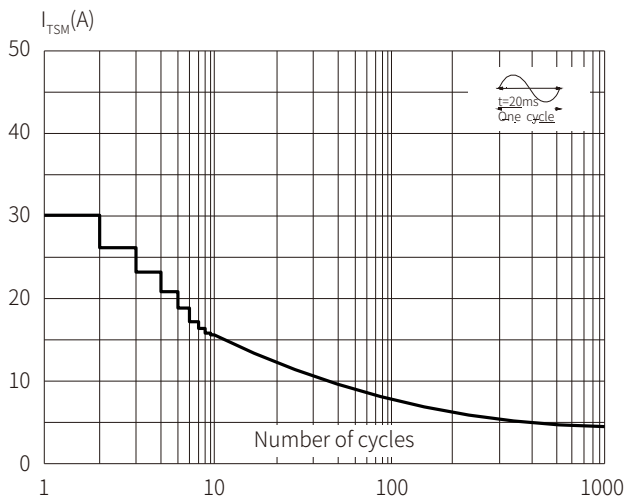
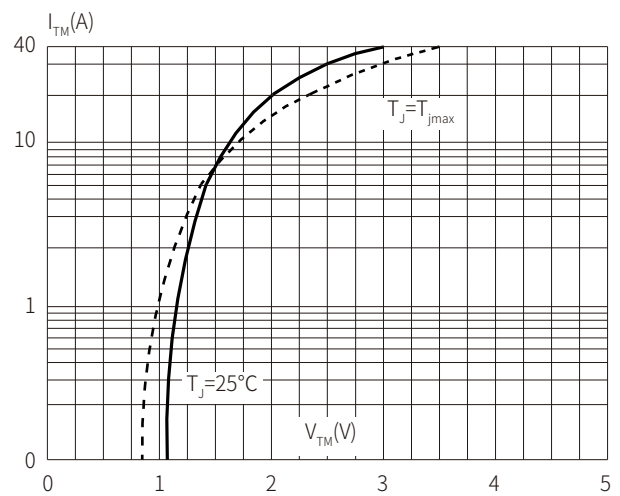
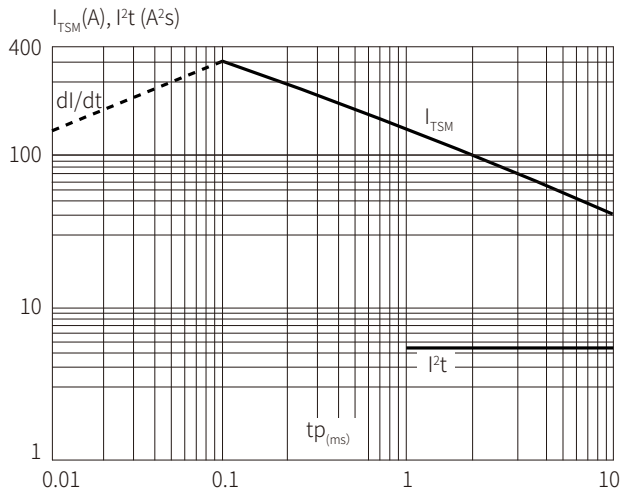


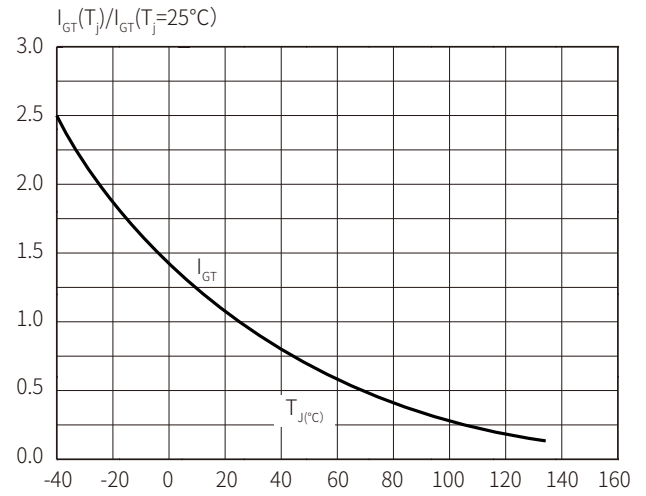
FIG.4 On-state characteristics (maximum values)



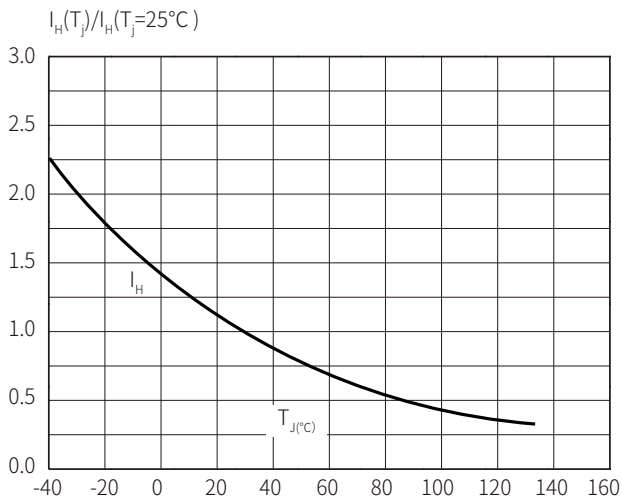
**FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10\text{ms}$  and corresponding value of  $I^2t$  ( $dI/dt < 50\text{A}/\mu\text{s}$ )**



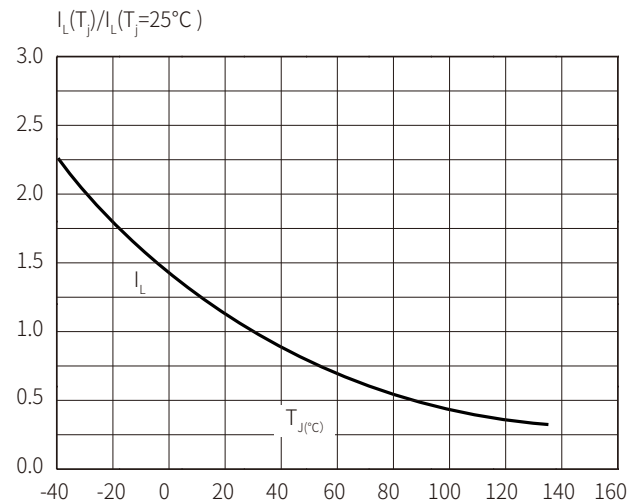
**FIG.6 Relative variations of gate trigger current versus junction temperature**



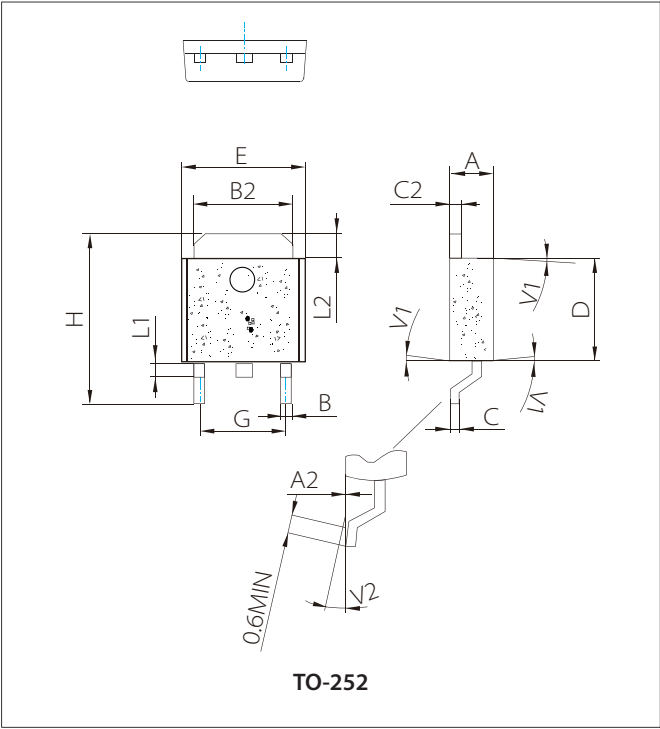
**FIG.7 Relative variations of holding current versus junction temperature**



**FIG.8 Relative variations of latching current versus junction temperature**



PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.20		2.40	0.086		0.095
A2	0.03		0.23	0.001		0.009
B	0.55		0.65	0.022		0.026
B2	5.10		5.40	0.200		0.213
C	0.45		0.62	0.018		0.024
C2	0.48		0.62	0.019		0.024
D	6.00		6.20	0.236		0.244
E	6.40		6.70	0.252		0.264
G	4.40		4.70	0.173	0.1	0.185
H	9.35		10.6	0.368		0.417
L1	1.30		1.70	0.051	0.143	0.067
L2	1.37		1.50	0.054		0.059
L1		4°			0.130	
V2	0°		8°	0°		8°

Order information

P/N	PKG	QTY
X0405-MS	TO-252	2500PCS

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