

MSKSEMI 美森科

SEMICONDUCTOR



ESD



TVS



TSS



MOV



GDT



PLED

MMFTN3019E-MS

Product specification

Features

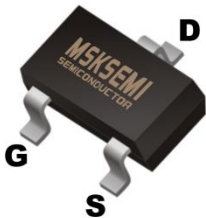
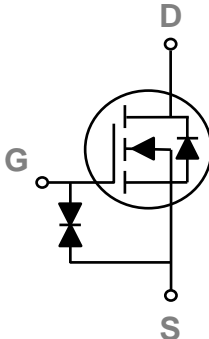
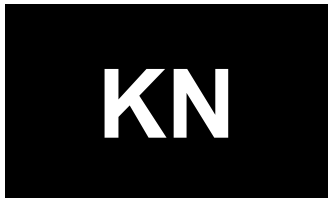
- 30V,200mA, $R_{DS(ON)} = 3.5\Omega @ V_{GS} = 10V$
- Improved dv/dt capability
- Fast switching
- Green Device Available

Reference News

- Notebook
- Load Switch
- Battery Protection
- Hand-held Instruments

BVDSS	RDSON	ID
30V	3.5Ω	200mA

Reference News

PACKAGE OUTLINE	PIN Configuration	Marking
 <p>SOT-523</p>		

Absolute Maximum Ratings $T_c=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Drain Current – Continuous ($T_A=25^\circ\text{C}$)	200	mA
	Drain Current – Continuous ($T_A=70^\circ\text{C}$)	150	mA
I_{DM}	Drain Current – Pulsed ¹	0.8	A
P_D	Power Dissipation ($T_c=25^\circ\text{C}$)	200	mW
	Power Dissipation – Derate above 25°C	2.0	mW/ $^\circ\text{C}$
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ\text{C}$

Thermal Characteristics

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction to ambient	---	400	$^\circ\text{C}/\text{W}$

Electrical Characteristics (T_J=25 °C, unless otherwise noted)

Off Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V , I _D =250uA	30	---	---	V
ΔBV _{DSS} /ΔT _J	BV _{DSS} Temperature Coefficient	Reference to 25°C , I _D =1mA	---	0.05	---	V/°C
I _{DSS}	Drain-Source Leakage Current	V _{DS} =30V , V _{GS} =0V , T _J =50°C	---	---	100	nA
		V _{DS} =30V , V _{GS} =0V , T _J =75°C	---	---	400	nA
I _{GSS}	Gate-Source Leakage Current	V _{GS} = ±20V , V _{DS} =0V	---	---	±6	uA

On Characteristics

R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =10V , I _D =0.2A	---	---	3.5	Ω
		V _{GS} =4.5V , I _D =0.1A	---	---	4.0	
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250uA	0.8	1.1	1.6	V
ΔV _{GS(th)}	V _{GS(th)} Temperature Coefficient		---	3	---	mV/°C

Dynamic and switching Characteristics

C _{iss}	Input Capacitance	V _{DS} =30V , V _{GS} =0V , F=1MHz	---	23	---	pF
C _{oss}	Output Capacitance		---	16	---	
C _{rss}	Reverse Transfer Capacitance		---	10	---	

Drain-Source Diode Characteristics and Maximum Ratings

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current	V _G =V _D =0V , Force Current	---	---	200	mA
I _{SM}	Pulsed Source Current		---	---	400	mA
V _{SD}	Diode Forward Voltage	V _{GS} =0V , I _S =0.2A , T _J =25°C	---	---	1.3	V

Note :

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 2%.
3. Essentially independent of operating temperature.

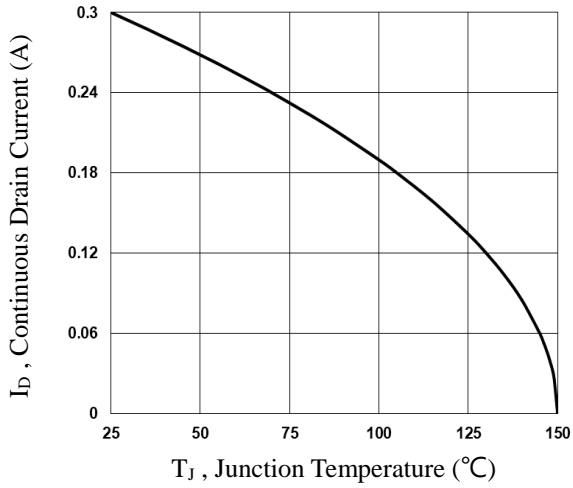


Fig.1 Continuous Drain Current vs. T_c

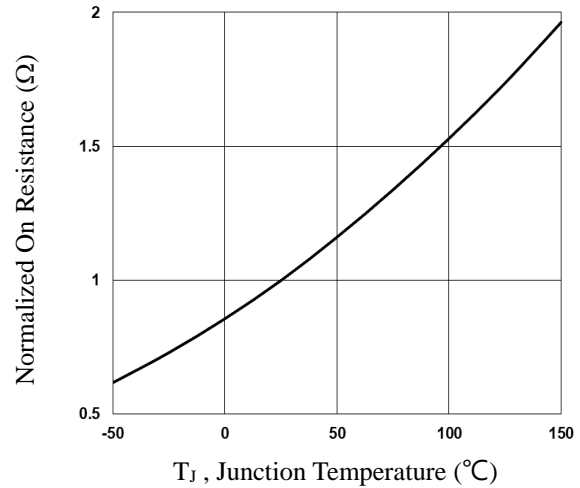


Fig.2 Normalized $R_{DS(on)}$ vs. T_J

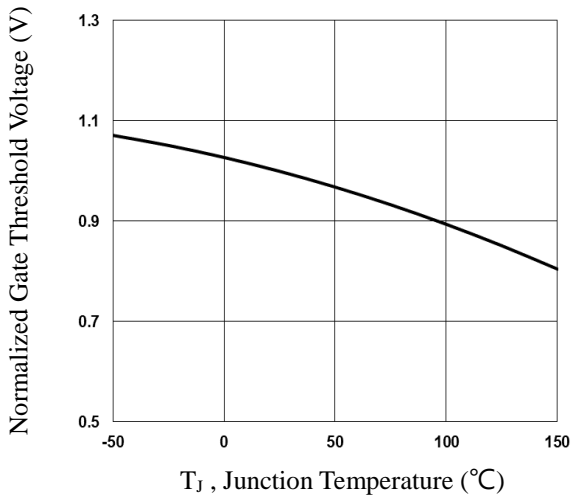


Fig.3 Normalized V_{th} vs. T_J

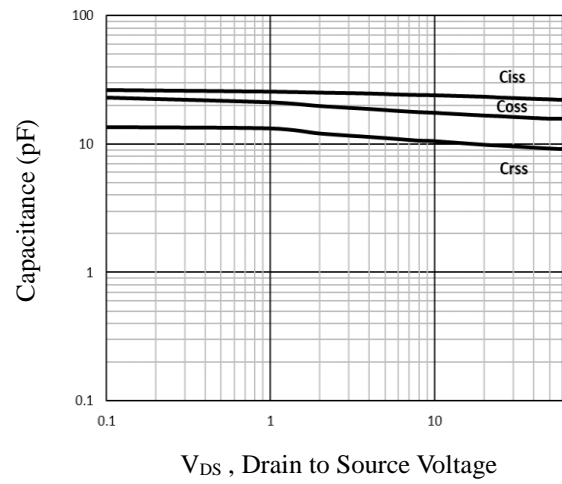


Fig.4 Capacitance Characteristics

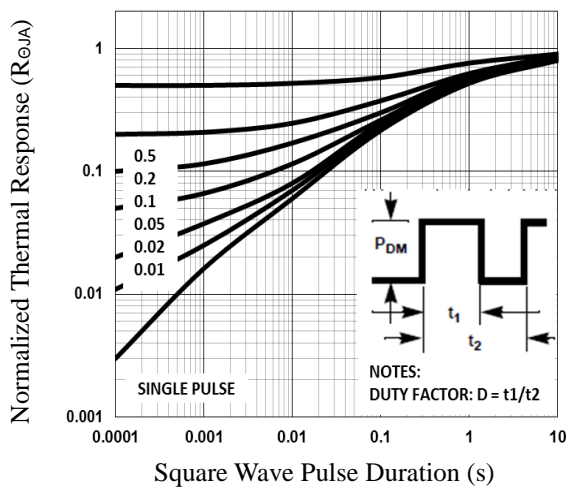


Fig.5 Normalized Transient Response

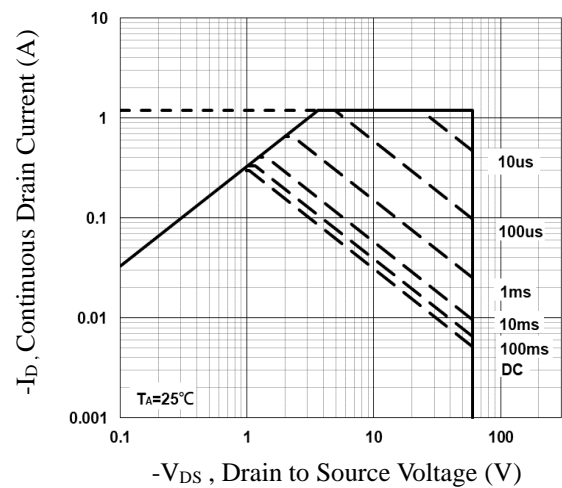


Fig.6 Maximum Safe Operation Area

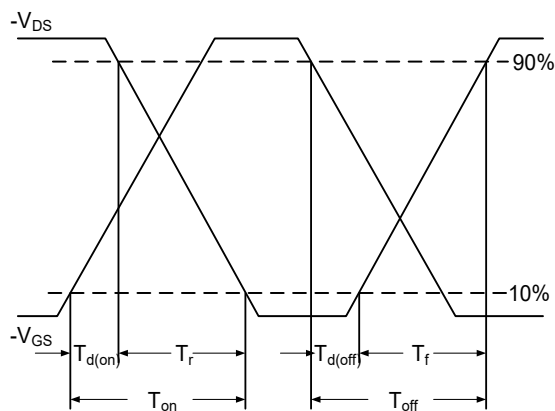


Fig.7 Switching Time Waveform

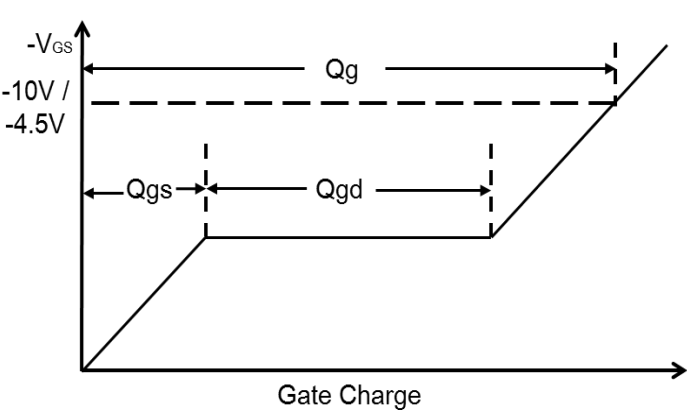
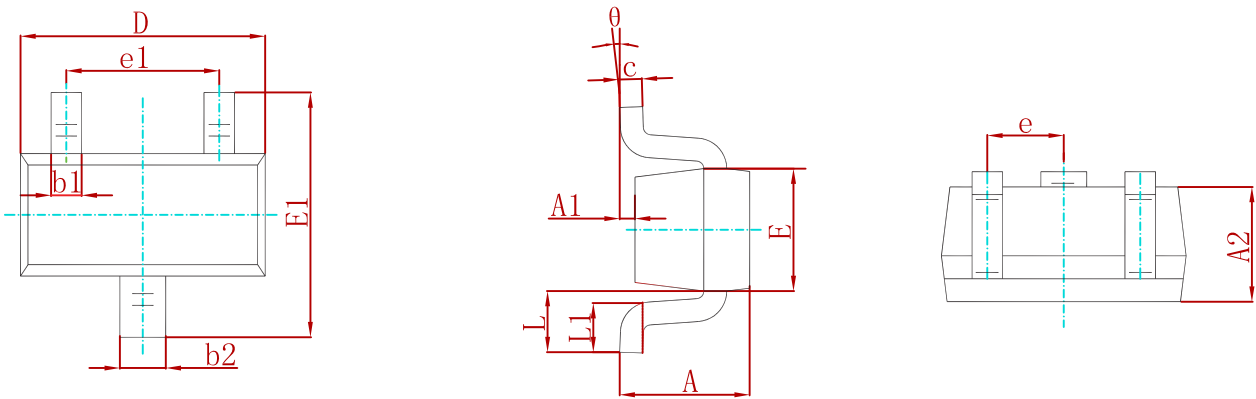


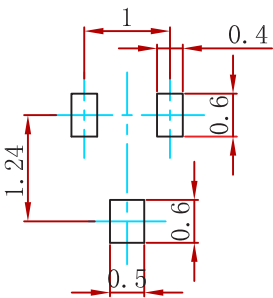
Fig.8 Gate Charge Waveform

PACKAGE MECHANICAL DATA



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.150	0.250	0.006	0.010
b2	0.250	0.350	0.010	0.014
c	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	0.700	0.900	0.028	0.035
E1	1.450	1.750	0.057	0.069
e	0.500 TYP.		0.020 TYP.	
e1	0.900	1.100	0.035	0.043
L	0.400 REF.		0.016 REF.	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

Suggested Pad Layout



Note:
1. Controlling dimension: in millimeters.
2. General tolerance: ±0.05mm.
3. The pad layout is for reference purposes only.

REEL SPECIFICATION

P/N	PKG	QTY
MMFTN3019E-MS	SOT-523	3000

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