

MSKSEMI 美森科

SEMICONDUCTOR



ESD



TVS



TSS



MOV



GDT



PLED

NTS4001NT1G

Product specification

Features

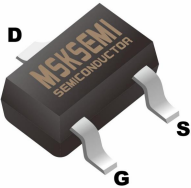
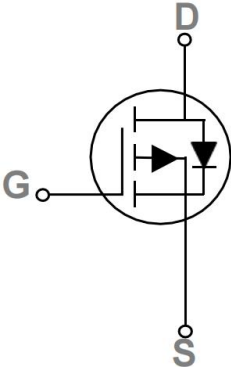

- 30V,300mA, RDS(ON) =1Ω@VGS = 10V
- Improved dv/dt capability
- Fast switching
- Green Device Available

Application

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

BVDSS	RDSON	ID
30V	1Ω	300mA

Reference News

PACKAGE OUTLINE	Pin Configuration	Marking
		
SOT-323		

Absolute Maximum Ratings (TA=25°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 (TA=25 °C)	300	mA
	Drain Current – Continuous (TA=70 °C)	220	mA
I _{DM}	Drain Current – Pulsed ¹	1.0	A
P _D	Power Dissipation (T _C =25 °C)	313	W
	Power Dissipation – Derate above 25 °C	2.5	Mw/°C
T _{STG}	Storage Temperature Range	-55 to 150	°C
T _J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Characteristics

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

Electrical Characteristics ($T_J=25^{\circ}\text{C}$, unless otherwise noted)

Off Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain- Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu\text{A}$	30	---	---	V
$\Delta BV_{DSS} / \Delta T_J$	BV_{DSS} Temperature Coefficient	Reference to 25°C , $I_D=1\text{mA}$	---	0.05	---	V/ $^{\circ}\text{C}$
I_{DSS}	Drain- Source Leakage Current	$V_{DS}=30V$, $V_{GS}=0V$, $T_J=50^{\circ}\text{C}$	---	---	200	A
		$V_{DS}=30V$, $V_{GS}=0V$, $T_J=85^{\circ}\text{C}$	---	---	400	A
I_{GSS}	Gate- Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 6	A

On Characteristics

$R_{DS(ON)}$	Static Drain- Source On- Resistance	$V_{GS}=10V$, $I_D=0.3A$	---	1.0	1.5	Ω
		$V_{GS}=4.5V$, $I_D=0.2A$	---	1.3	2.3	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu\text{A}$	0.8	1.1	1.6	V
$\Delta V_{GS(th)}$	$V_{GS(th)}$ Temperature Coefficient		---	3	---	$\text{mV}/^{\circ}\text{C}$

Dynamic and switching Characteristics

C_{iss}	Input Capacitance	$V_{DS}=30V$, $V_{GS}=0V$, $F=1\text{MHz}$	---	23	---	pF
C_{oss}	Output Capacitance		---	16	---	
C_{riss}	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	---	---	300	mA
I_{SM}	Pulsed Source Current		---	---	600	mA
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=0.2A$, $T_J=25^{\circ}\text{C}$	---	---	1.3	V

Note :

- 1.Repetitive Rating : Pulsed width limited by maximum junction temperature.
- 2 . The data tested by pulsed , pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.
3. Essentially independent of operating temperature.

ELECTRICAL CHARACTERISTICS CURVE

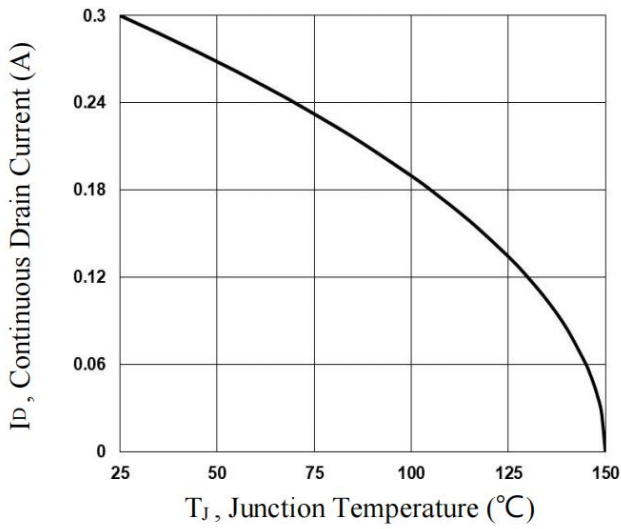


Fig.1 Continuous Drain Current vs. T_c

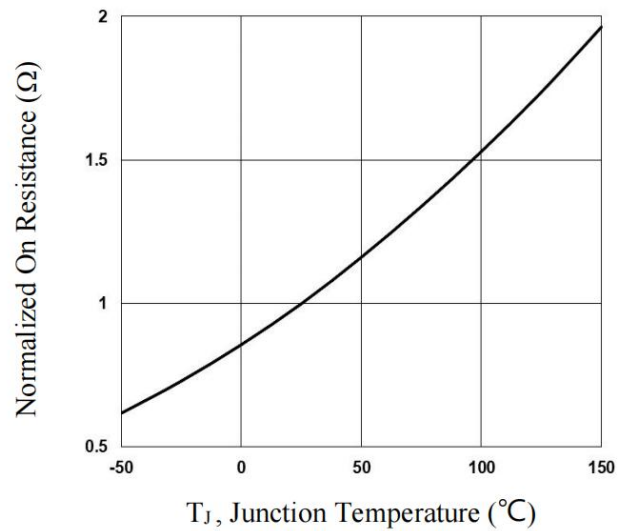


Fig.2 Normalized $R_{DS(on)}$ vs. T_j

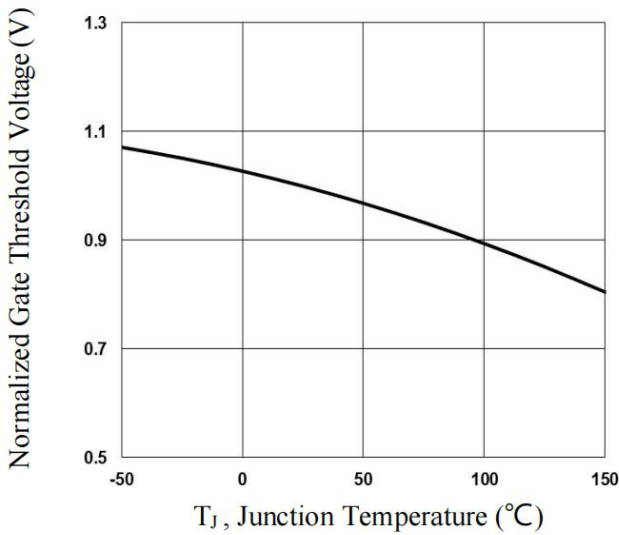


Fig.3 Normalized V_{th} vs. T_j

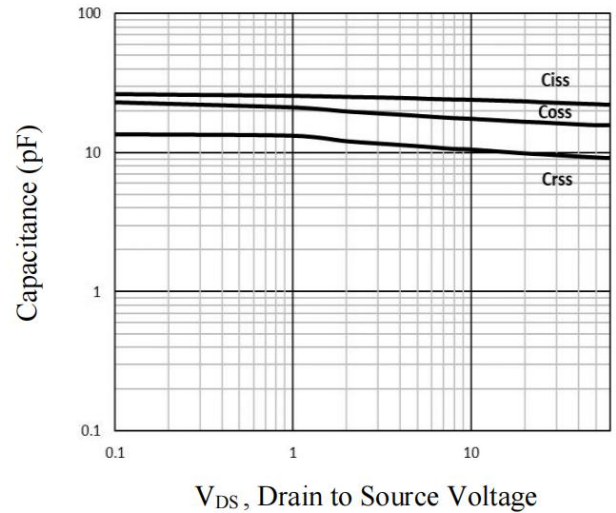


Fig.4 Capacitance Characteristics

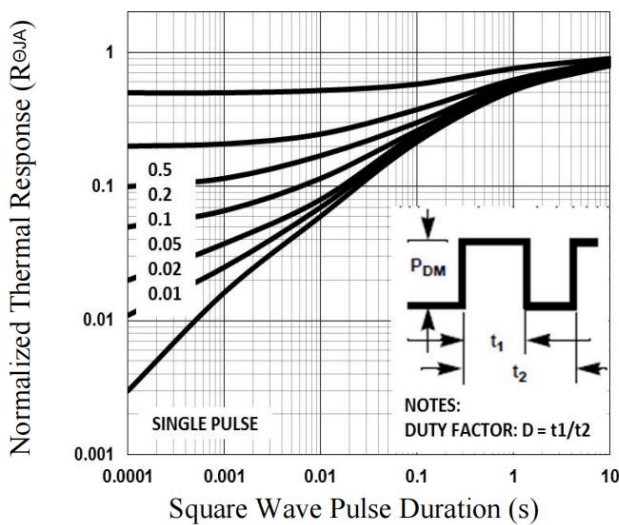


Fig.5 Normalized Transient Response

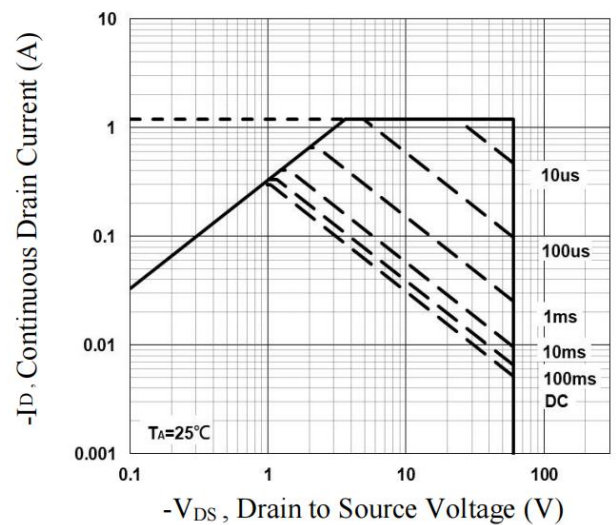


Fig.6 Maximum Safe Operation Area

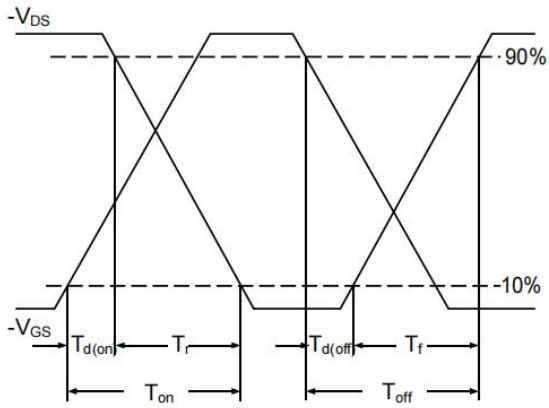


Fig.7 Switching Time Waveform

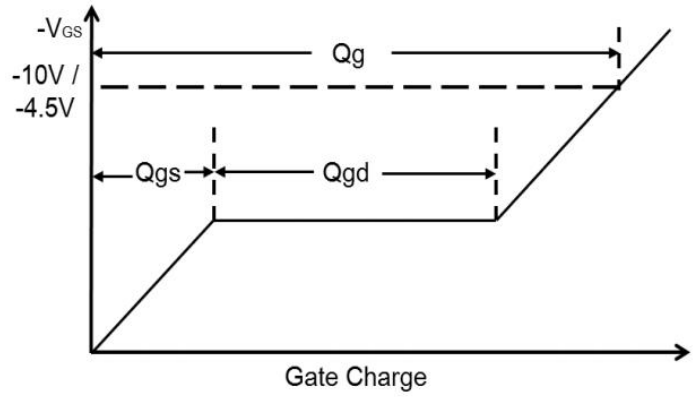
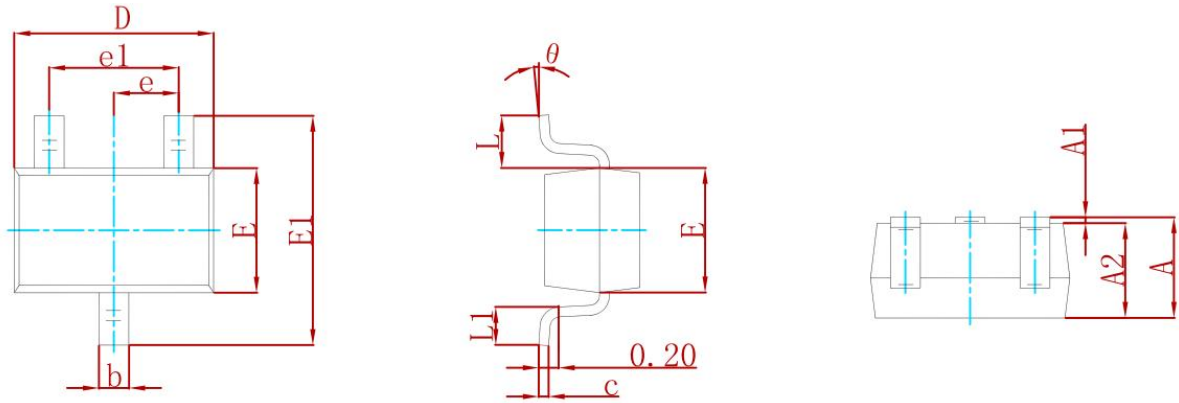


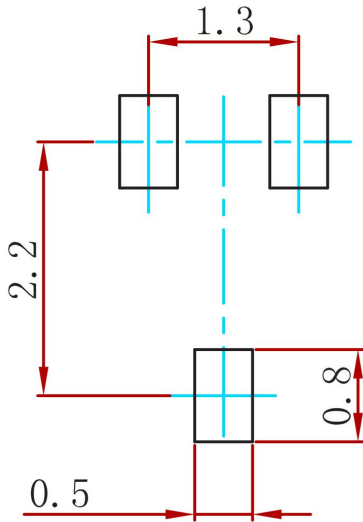
Fig.8 Gate Charge Waveform

PACKAGE MECHANICAL DATA



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.200	0.400	0.008	0.016
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP		0.026 TYP	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
g	0°	8°	0°	8°

Suggested Pad Layout



Note:

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

REEL SPECIFICATION

P/N	PKG	QTY
NTS4001NT1G	SOT-323	3000

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