

# MSKSEMI

SEMICONDUCTOR



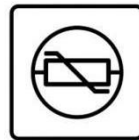
ESD



TVS



TSS



MOV



GDT



PLED

Product data sheet

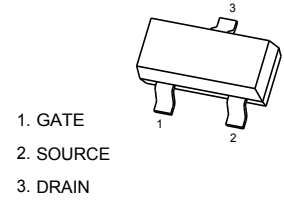
**FEATURE**

- High dense cell design for extremely low  $R_{DS(ON)}$ .
- Exceptional on-resistance and maximum DC current capability

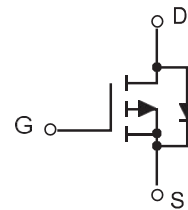
**APPLICATION**

- Load/Power Switching
- Interfacing Switching

**SOT-23-3L**



**Equivalent Circuit**



$V_{(BR)DSS}$	$R_{DS(on)MAX}$	$I_D$
-30 V	65mΩ@-10V	-4.2A
	75mΩ@-4.5V	
	90mΩ@-2.5V	

**Maximum ratings (  $T_a=25^{\circ}C$  unless otherwise noted)**

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	-30	V
Gate-Source Voltage	$V_{GS}$	±12	V
Continuous Drain Current	$I_D$	-4.2	A
Power Dissipation	$P_D$	350	mW
Thermal Resistance from Junction to Ambient ( $t<5s$ )	$R_{\theta JA}$	357	$^{\circ}C/W$
Junction Temperature	$T_J$	150	$^{\circ}C$
Storage Temperature	$T_{STG}$	-55~+150	$^{\circ}C$

## MOSFET ELECTRICAL CHARACTERISTICS

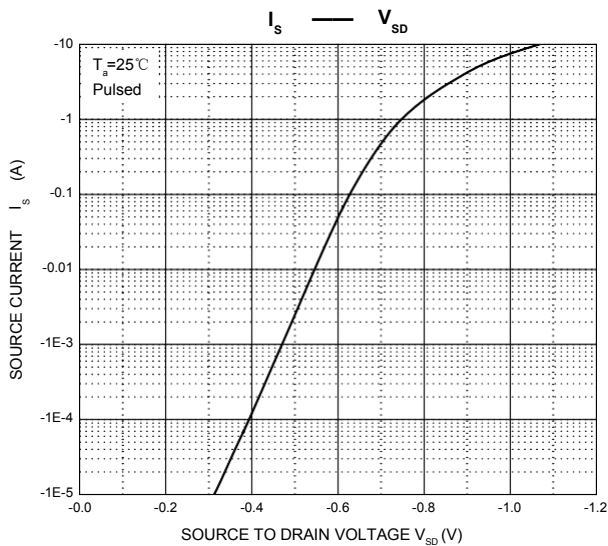
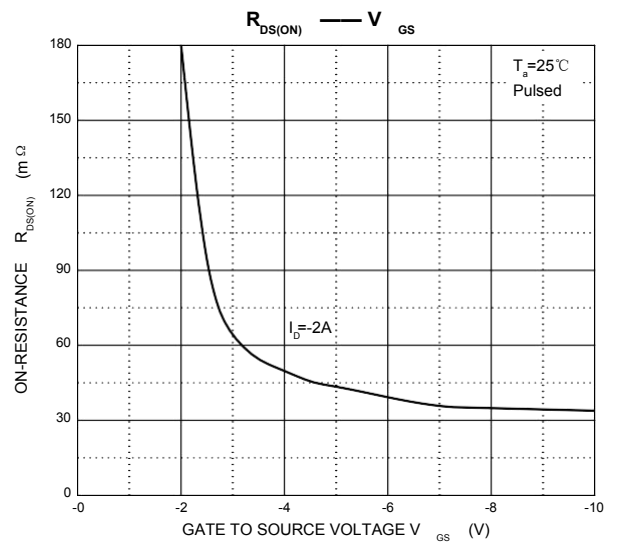
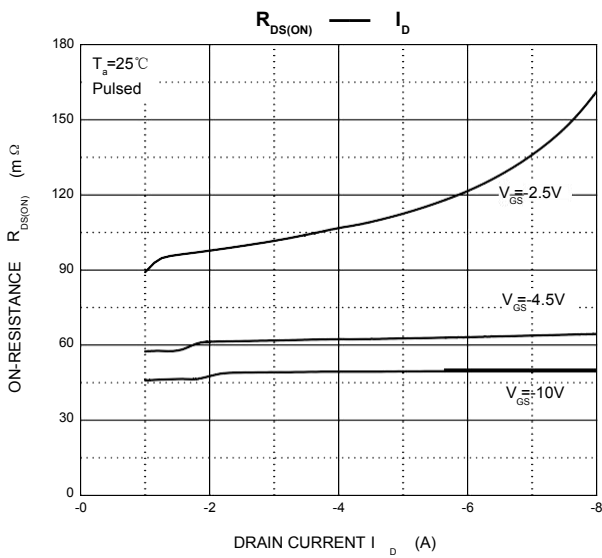
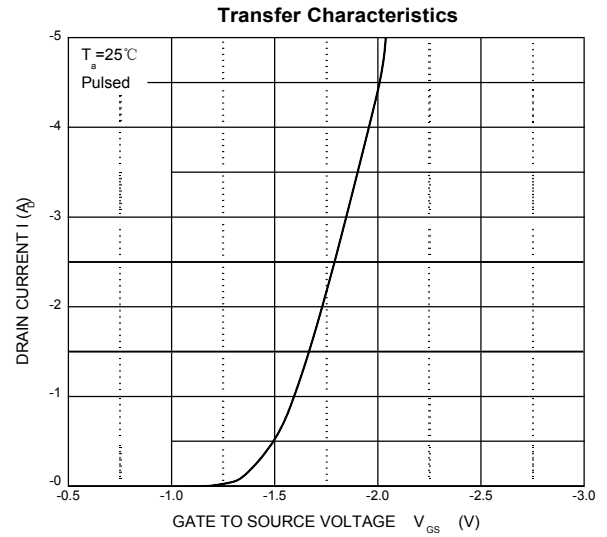
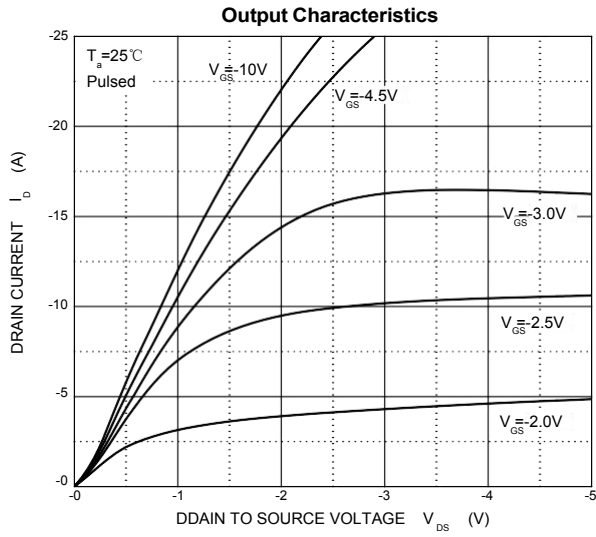
$T_a=25\text{ }^\circ\text{C}$  unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>Off characteristics</b>						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-30			V
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = -24V, V_{GS} = 0V$			-1	$\mu A$
Gate-source leakage current	$I_{GSS}$	$V_{GS} = \pm 12V, V_{DS} = 0V$			$\pm 100$	nA
<b>On characteristics</b>						
Drain-source on-resistance (note 1)	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -4.2A$		50	65	m $\Omega$
		$V_{GS} = -4.5V, I_D = -4A$		60	75	m $\Omega$
		$V_{GS} = -2.5V, I_D = -1A$		75	90	m $\Omega$
Forward transconductance (note 1)	$g_{FS}$	$V_{DS} = -5V, I_D = -5A$	7			S
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.7	-0.9	-1.3	V
<b>Dynamic characteristics (note 2)</b>						
Input capacitance	$C_{iss}$	$V_{DS} = -15V, V_{GS} = 0V, f = 1MHz$		954		pF
Output capacitance	$C_{oss}$			115		pF
Reverse transfer capacitance	$C_{rss}$			77		pF
<b>Switching characteristics (note 2)</b>						
Turn-on delay time	$t_{d(on)}$	$V_{GS} = -10V, V_{DS} = -15V,$ $R_L = 3.6\Omega, R_{GEN} = 6\Omega$			6.3	ns
Turn-on rise time	$t_r$				3.2	ns
Turn-off delay time	$t_{d(off)}$				38.2	ns
Turn-off fall Time	$t_f$				12	ns
<b>Drain-source diode characteristics and maximum ratings</b>						
Diode forward voltage (note 1)	$V_{SD}$	$I_S = -1A, V_{GS} = 0V$			-1	V

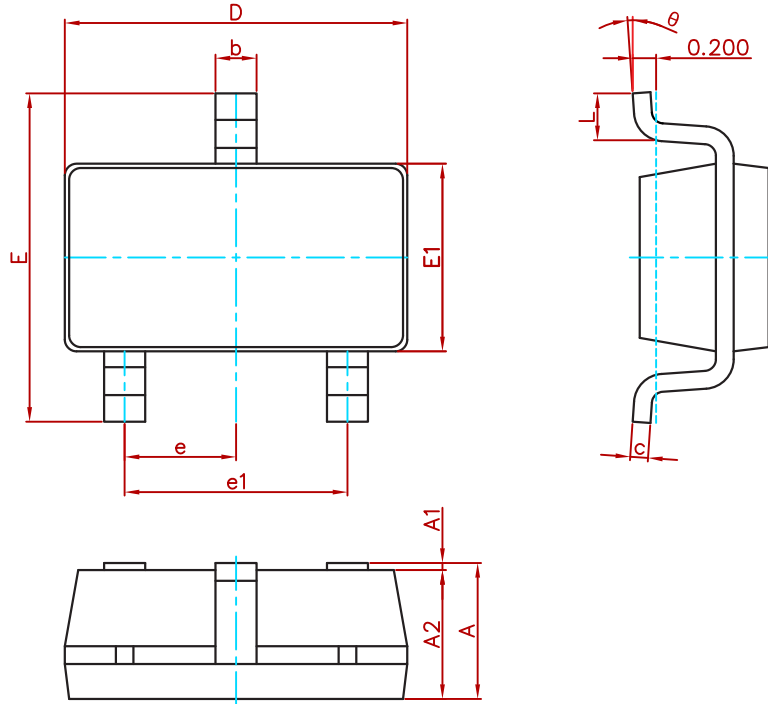
**Note :**

1. Pulse Test : Pulse width  $\leq 300\mu s$ , duty cycle  $\leq 2\%$ .
2. These parameters have no way to verify.

**Typical Characteristics**

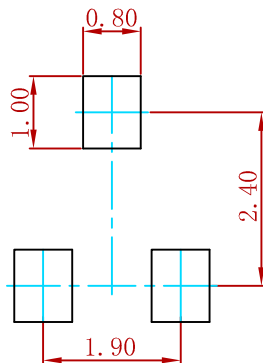


**PACKAGE MECHANICAL DATA**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E1	1.500	1.700	0.059	0.067
E	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
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
AO3401MI-MS	SOT-23-3L	3000

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