

# MSKSEMI

SEMICONDUCTOR



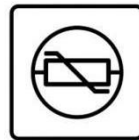
ESD



TVS



TSS



MOV



GDT



PLED

Product data sheet

### MOSFET Product Summary

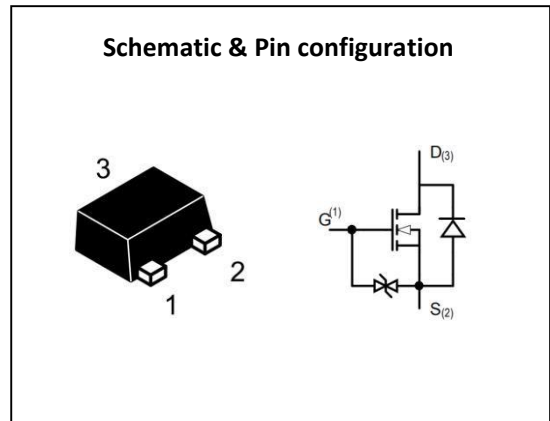
$V_{DS}$	$I_D$	$R_{DS(on)}$
20V	0.8A	<350mΩ@4.5V
		<420mΩ@2.5V

### Features and benefits

- Lead Free Product is Acquired
- Surface Mount Package
- N-Channel Switch with Low RDS(on)
- Operated at Low Logic Level Gate Drive

### Applications

- Load/Power Switching
- Interfacing Switching
- Battery Management for Ultra Small Portable Electronics
- Logic Level Shift



### Maximum Ratings ( $T_A = 25\text{ }^\circ\text{C}$ , unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	20	V
Gate-Source Voltage	$V_{GS}$	±8	V
Continuous Drain Current <small>(note1)</small>	$I_D$	0.8	A
Pulsed Drain Current <small>(tp=10-s)</small>	$I_{DM}$	1.8	A
Power Dissipation <small>(note1)</small>	$P_D$	0.15	W
Thermal Resistance from Junction to Ambient <small>(note1)</small>	$R_{\theta JA}$	850	°C/W
Junction temperature	$T_j$	125	°C
Storage temperature	$T_{stg}$	-50 to +150	°C
Lead Temperature for Soldering Purposes <small>(1/8" from case for 10 s)</small>	$T_L$	260	°C

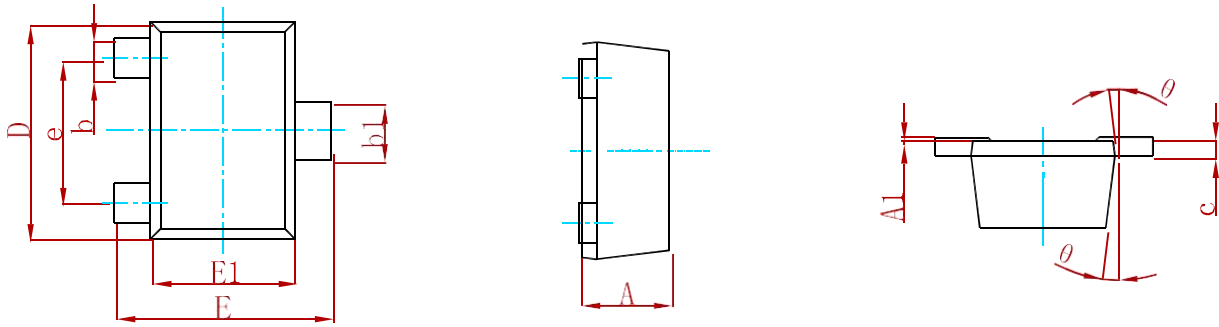
**Electrical Characteristics** ( $T_A = 25\text{ }^\circ\text{C}$ , unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
<b>STATIC CHARACTERISTIC</b>						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	20			V
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = 20V, V_{GS} = 0V$			1	$\mu A$
Gate-body leakage current	$I_{GSS}$	$V_{GS} = \pm 8V, V_{DS} = 0V$			$\pm 10$	$\mu A$
Gate threshold voltage <small>(note2)</small>	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.5	0.7	1.0	V
Drain-source on-resistance <small>(note2)</small>	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D = 0.5A$			0.35	$\Omega$
		$V_{GS} = 2.5V, I_D = 0.5A$			0.42	$\Omega$
Maximum Continuous Drain to Source Diode Forward Current	$I_S$	--			0.8	A
Maximum Pulsed Drain to Source Diode Forward Current	$I_{SM}$	--			1.2	A
Diode forward voltage	$V_{SD}$	$I_S = 0.5A, V_{GS} = 0V$			1.2	V
<b>DYNAMIC CHARACTERISTICS</b> <small>(note4)</small>						
Input capacitance	$C_{iss}$	$V_{DS} = 16V, V_{GS} = 0V, f = 1MHz$			120	pF
Output capacitance	$C_{oss}$				20	pF
Reverse transfer capacitance	$C_{rss}$				15	pF
<b>SWITCHING CHARACTERISTICS</b> <small>(note4)</small>						
Turn-on delay time <small>(note3)</small>	$t_{d(on)}$	$V_{GS} = 4.5V, V_{DS} = 10V, I_D = 500mA, R_{GEN} = 10\Omega$		8		nS
Turn-on rise time <small>(note3)</small>	$t_r$			5		nS
Turn-off delay time <small>(note3)</small>	$t_{d(off)}$			20		nS
Turn-off fall time <small>(note3)</small>	$t_f$			10		nS

## Notes:

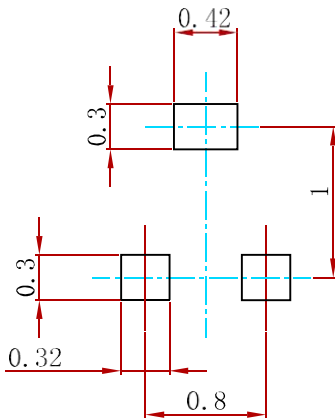
- Surface mounted on FR4 board using the minimum recommended pad size.
- Pulse Test : Pulse Width=300 $\mu s$ , Duty Cycle=2%.
- Switching characteristics are independent of operating junction temperatures.
- Guaranteed by design, not subject to producing.

**PACKAGE MECHANICAL DATA**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.430	0.500	0.017	0.020
A1	0.000	0.050	0.000	0.002
b	0.170	0.270	0.007	0.011
b1	0.270	0.370	0.011	0.015
c	0.080	0.150	0.003	0.006
D	1.150	1.250	0.045	0.049
E	1.150	1.250	0.045	0.049
E1	0.750	0.850	0.030	0.033
e	0.800TYP.		0.031TYP.	
θ	7° REF.		7° REF.	

**Suggested Pad Layout**



- Note:
1. Controlling dimension: in millimeters.
  2. General tolerance:  $\pm 0.05\text{mm}$ .
  3. The pad layout is for reference purposes only.

**REEL SPECIFICATION**

P/N	PKG	QTY
MS3134	SOT-723	8000

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