



# MK3415A

## P-Channel 20-V(D-S) MOSFET

V(BR)DSS	RDS(on)MAX	ID
-20 V	55mΩ@-4.5V	- 4A
	65mΩ@-2.5V	
	85mΩ@-1.8V	

### FEATURE

※ TrenchFET Power MOSFET

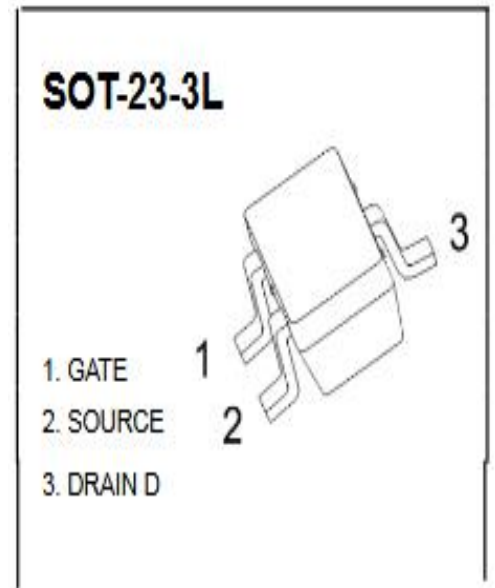
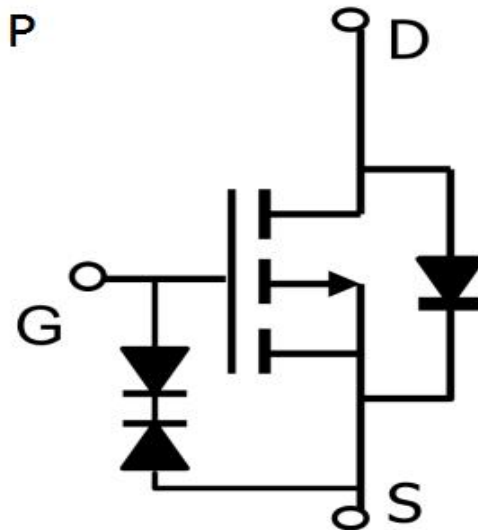
### APPLICATION

- ※ Load Switch for Portable Devices
- ※ DC/DC Converter

### MARKING



### Equivalent Circuit



### Maximum ratings ( Ta=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	VDS	-20	V
Gate-Source Voltage	VGS	±8	
Continuous Drain Current	ID	- 4	A
Pulsed Diode Current	IDM	-15	
Power Dissipation	PD	1.25	W
Thermal Resistance from Junction to Ambient (t≤5s)	RθJA	125	°C/W
Operating Junction	TJ	150	°C
Storage Temperature	TSTG	-55~+150	



MOSFET ELECTRICAL CHARACTERISTICS

Static Electrical Characteristics (Ta = 25 °C Unless Otherwise Noted)

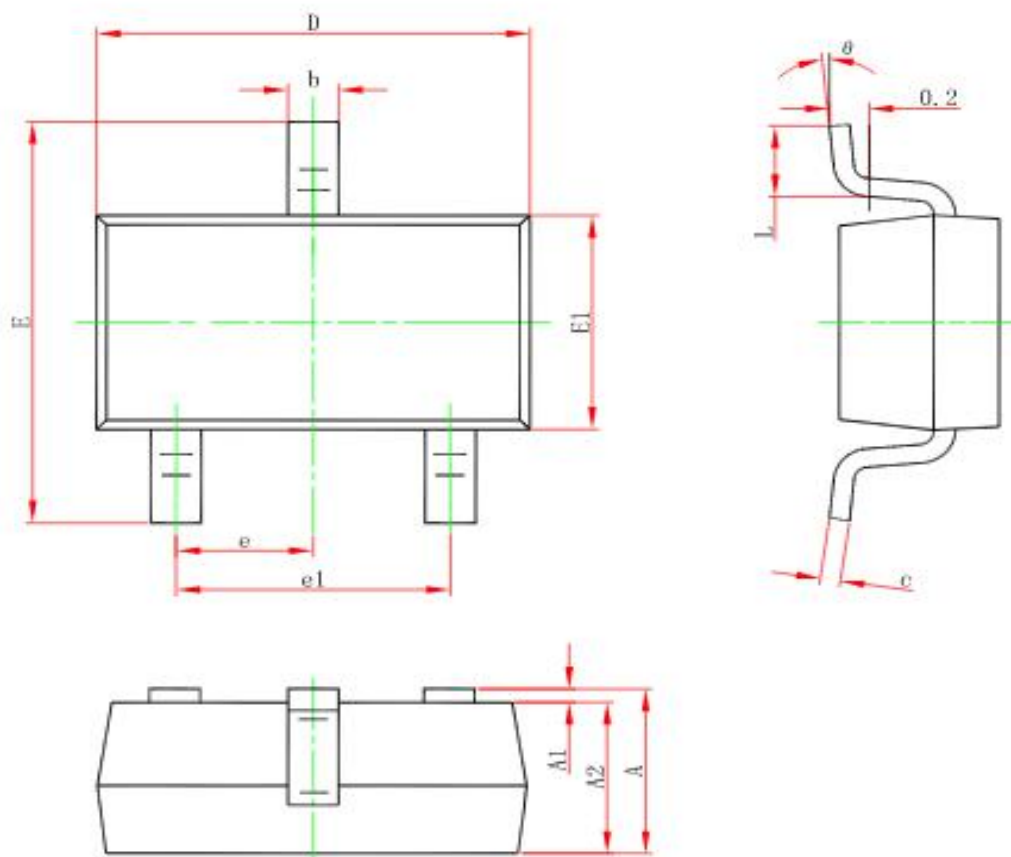
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>Static</b>						
Drain-source breakdown voltage	<b>V(BR)DSS</b>	VGS = 0V, ID = -250μA	<b>-20</b>			V
Gate-source threshold voltage	<b>VGS(th)</b>	VDS =VGS, ID = -250μA	<b>-0.4</b>		<b>-1</b>	V
Gate-source leakage	<b>IGSS</b>	VDS =0V, VGS = ±8V			<b>±10</b>	μA
Zero gate voltage drain current	<b>IDSS</b>	VDS = -20V, VGS =0V			<b>-1</b>	μA
Drain-source on-state resistancea	<b>RDS(on)</b>	VGS = -4.5V, ID = -4A		<b>39</b>	<b>55</b>	mΩ
		VGS = -2.5V, ID = -3A		<b>49</b>	<b>65</b>	mΩ
		VGS = -1.8V, ID = -2A		<b>71</b>	<b>85</b>	mΩ
Forward transconductancea	<b>gfs</b>	VDS = -4.5V, ID = -4.7A	<b>7</b>			S
Diode forward voltage	<b>VSD</b>	IS=-1A,VGS=0V		<b>-0.8</b>	<b>-1.2</b>	V
<b>Dynamic</b>						
Input capacitance	<b>Ciss</b>	VDS = -10V, VGS =0V, f=1MHz		<b>751</b>		pF
Output capacitance	<b>Coss</b>			<b>115</b>		pF
Reverse transfer capacitanceb	<b>Crss</b>			<b>80</b>		pF
Total gate charge	<b>Qg</b>	VDS = -10V, VGS = -4.5V, ID =-4.7A		<b>9.3</b>		nC
Gate-source charge	<b>Qgs</b>			<b>1.3</b>		nC
Gate-drain charge	<b>Qgd</b>			<b>2.2</b>		nC
Gate resistance	<b>Rg</b>	f=1MHz		<b>13</b>		Ω
<b>Switchingb</b>						
Turn-on delay time	<b>td(on)</b>	VDD= -10V RL=3Ω, ID ≈ -1A, VGEN=- 4.5V,Rg=3Ω		<b>13</b>		ns
Rise time	<b>tr</b>			<b>9</b>		ns
Turn-off delay time	<b>td(off)</b>			<b>19</b>		ns
Fall time	<b>tf</b>			<b>24</b>		ns
Body Diode Reverse Recovery Time	<b>Trr</b>	IF= -4A, dI/dt=100A/μs		<b>26</b>		ns
Body Diode Reverse Recovery Charge	<b>Qrr</b>	IF= -4A, dI/dt=100A/μs		<b>51</b>		nC

**Note :**

1. Repetitive Rating : Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t < 5 sec.
3. Pulse Test : Pulse Width≤300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production testing.



SOT-23-3L PACKAGE OUTLINE DIMENSIONS



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
theta	0°	8°	0°	8°