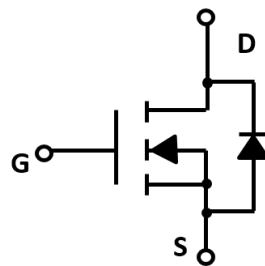
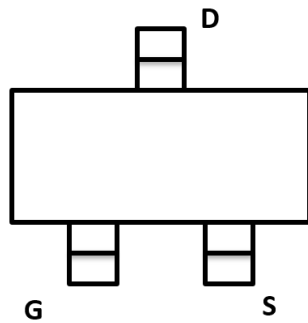


Top View

SOT-23

**Product Summary**

- $V_{DS}$  30V
- $I_D$  5.6A
- $R_{DS(ON)}$  ( at  $V_{GS}=10V$ ) <27 mohm
- $R_{DS(ON)}$  ( at  $V_{GS}=4.5V$ ) <33 mohm
- $R_{DS(ON)}$  ( at  $V_{GS}=2.5V$ ) <51 mohm

**General Description**

- Trench Power LV MOSFET technology
- High density cell design for low  $R_{DS(ON)}$
- High Speed switching

**Applications**

- Battery protection
- Load switch
- Power management

**■ Absolute Maximum Ratings** ( $T_A=25^\circ\text{C}$  unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-source Voltage	$V_{DS}$	30	V
Gate-source Voltage	$V_{GS}$	$\pm 12$	V
Drain Current	$I_D$	$T_A=25^\circ\text{C}$ @ Steady State	5.6
		$T_A=70^\circ\text{C}$ @ Steady State	4.5
Pulsed Drain Current <sup>A</sup>	$I_{DM}$	23	A
Total Power Dissipation @ $T_A=25^\circ\text{C}$	$P_D$	1.2	W
Thermal Resistance Junction-to-Ambient @ Steady State <sup>B</sup>	$R_{\theta JA}$	104	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature Range	$T_J, T_{STG}$	-55~+150	$^\circ\text{C}$

**■ Ordering Information** (Example)

PREFERED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
LM3400	F2	3400.	3000	30000	120000	7" reel



■ Electrical Characteristics (T<sub>J</sub>=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
<b>Static Parameter</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> =250μA	30			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =30V, V <sub>GS</sub> =0V			1	μA
Gate-Body Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> = ± 12V, V <sub>DS</sub> =0V			± 100	nA
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> =250μA	0.65	0.9	1.5	V
Static Drain-Source On-Resistance	R <sub>DS(ON)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =5.6A		21	27	mΩ
		V <sub>GS</sub> = 4.5V, I <sub>D</sub> =5.0A		25	33	
		V <sub>GS</sub> =2.5V, I <sub>D</sub> =3.0A		33	51	
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =5.6A, V <sub>GS</sub> =0V		0.8	1.2	V
Maximum Body-Diode Continuous Current	I <sub>S</sub>				5.6	A
<b>Dynamic Parameters</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =15V, V <sub>GS</sub> =0V, f=1MHZ		535		pF
Output Capacitance	C <sub>oss</sub>			130		
Reverse Transfer Capacitance	C <sub>rss</sub>			36		
<b>Switching Parameters</b>						
Total Gate Charge	Q <sub>g</sub>	V <sub>GS</sub> =4.5V, V <sub>DS</sub> =15V, I <sub>D</sub> =5.6A		4.8		nC
Gate Source Charge	Q <sub>gs</sub>			1.2		
Gate Drain Charge	Q <sub>gd</sub>			1.7		
Turn-on Delay Time	t <sub>D(on)</sub>	V <sub>GS</sub> =4.5V, V <sub>DD</sub> =15V, I <sub>D</sub> =1A, R <sub>GEN</sub> =2.8Ω		12		ns
Turn-on Rise Time	t <sub>r</sub>			52		
Turn-off Delay Time	t <sub>D(off)</sub>			17		
Turn-off Fall Time	t <sub>f</sub>			10		

- A. Pulse Test: Pulse Width ≤ 300us, Duty cycle ≤ 2%.
- B. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.



■ Typical Performance Characteristics

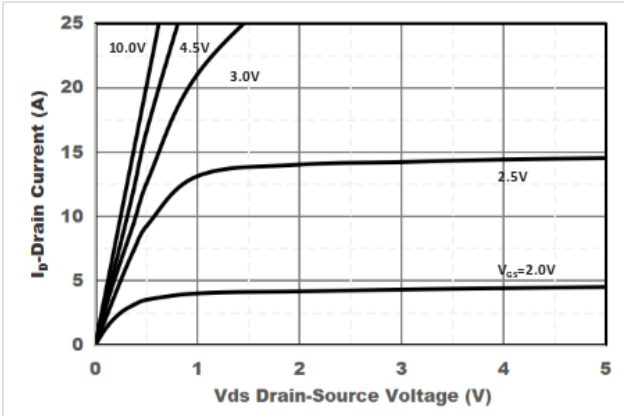


Figure1. Output Characteristics

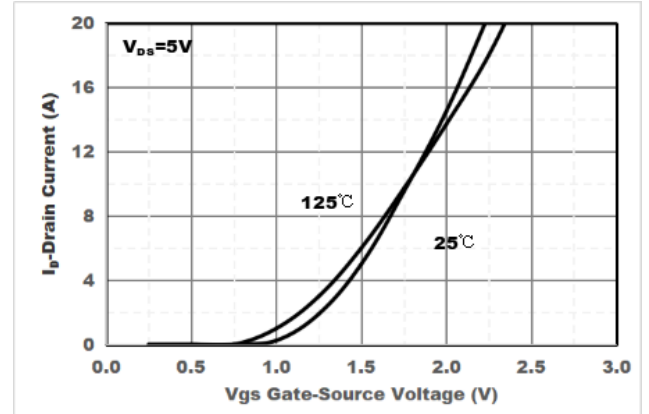


Figure2. Transfer Characteristics

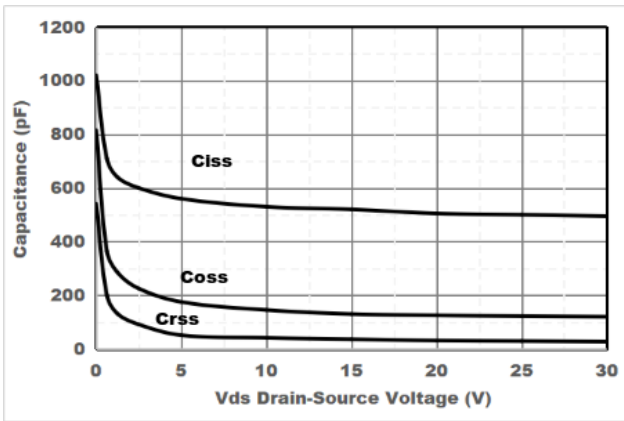


Figure3. Capacitance Characteristics

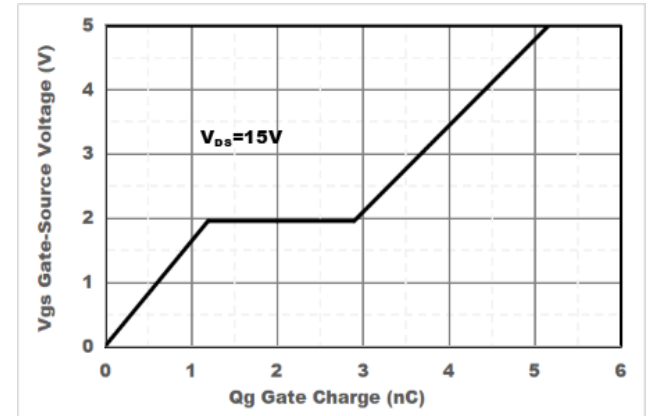


Figure4. Gate Charge

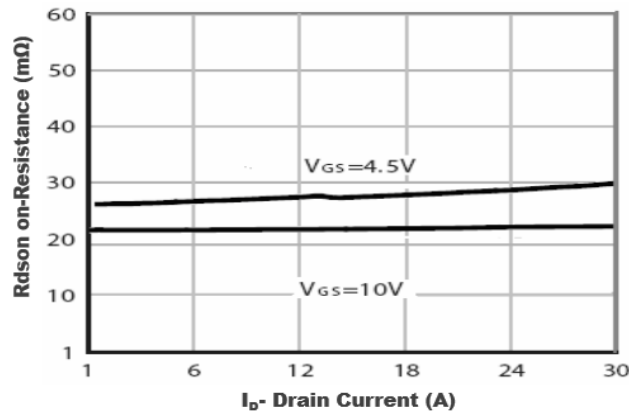


Figure5. Drain-Source on Resistance

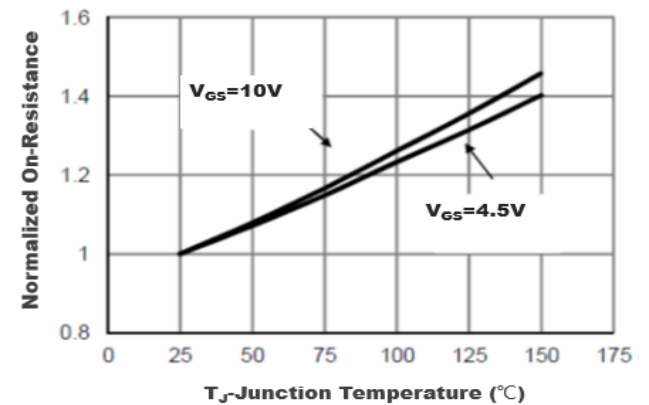


Figure6. Drain-Source on Resistance

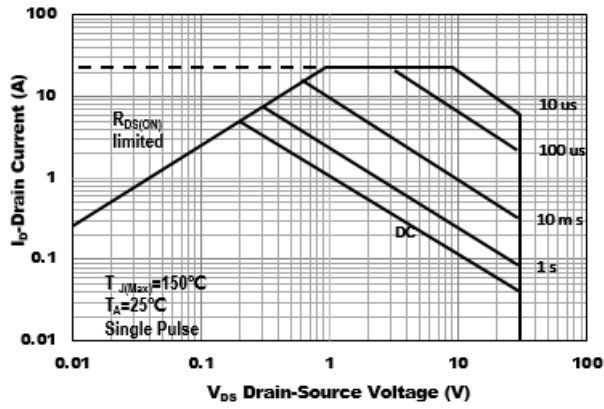


Figure7. Safe Operation Area

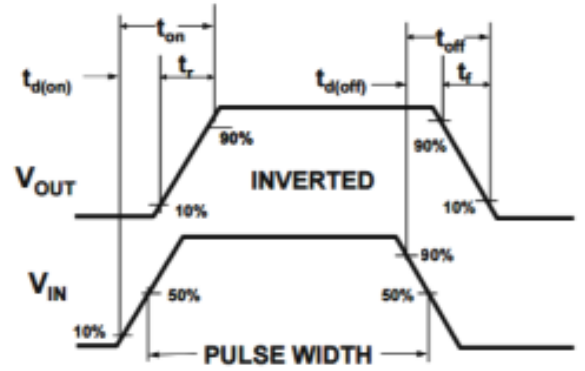
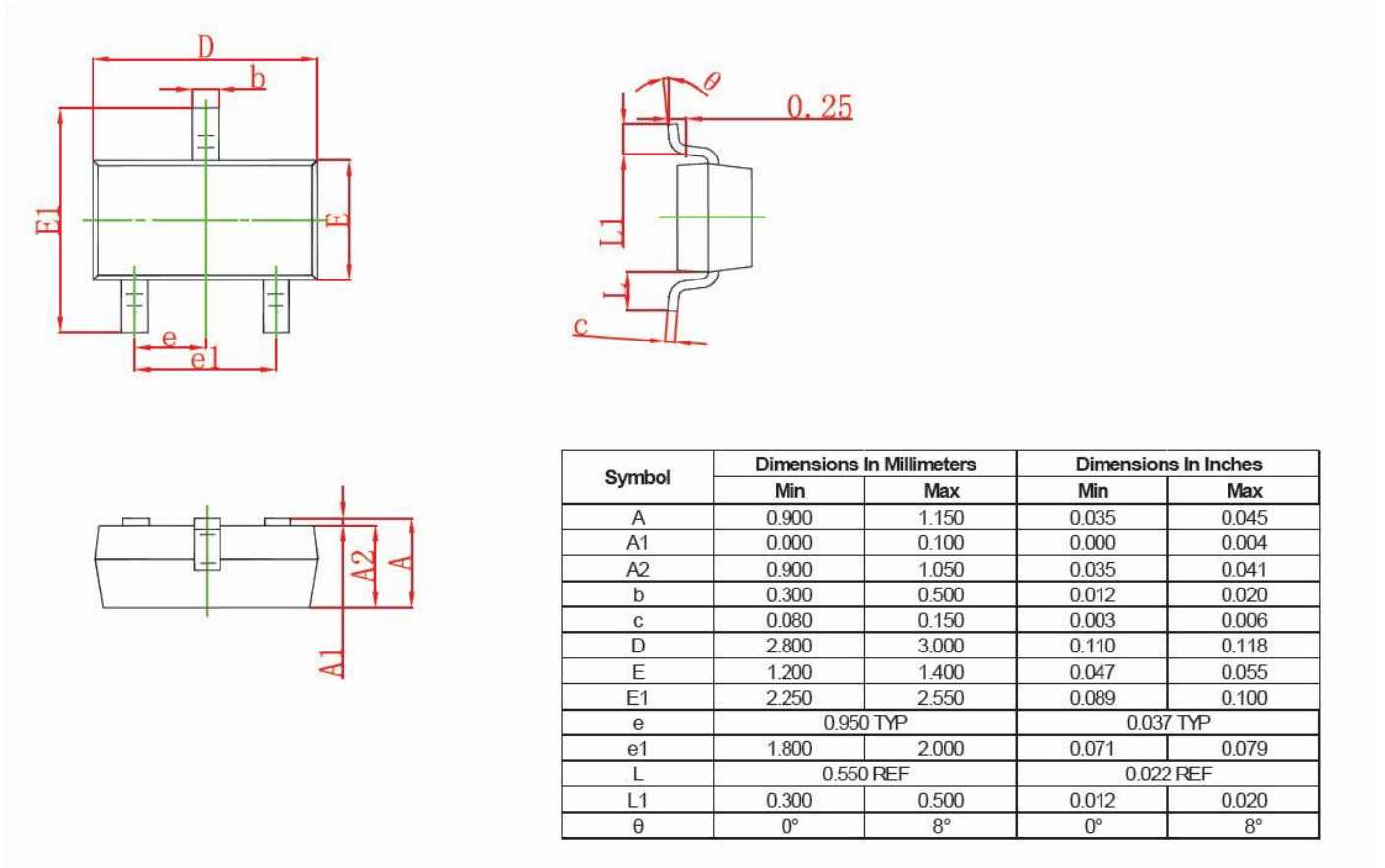


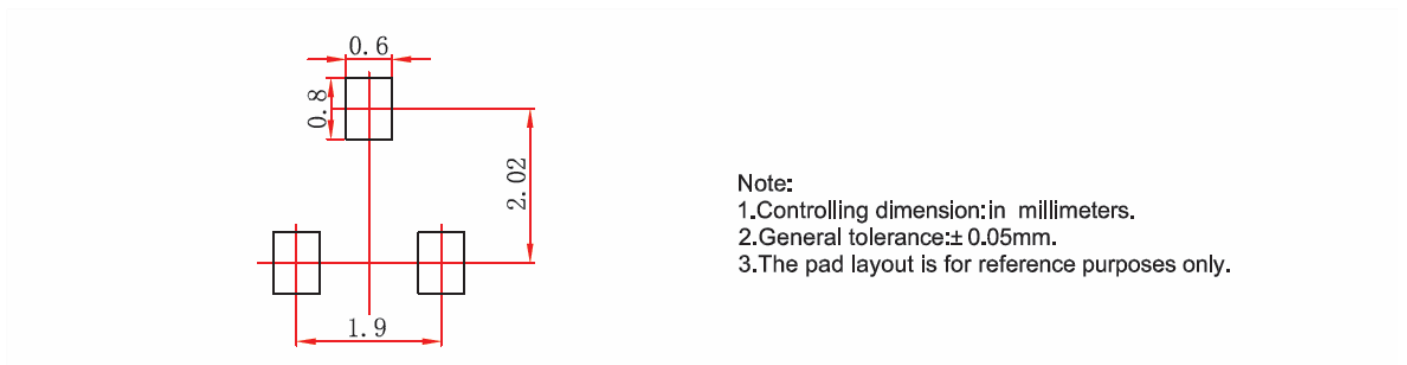
Figure8. Switching wave



■ SOT-23 Package information



■ SOT-23 Suggested Pad Layout



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