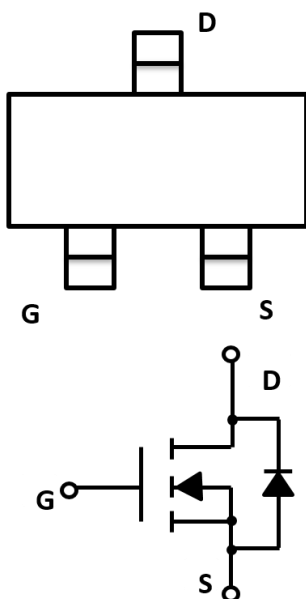


Top View

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 ($T_A=25^{\circ}C$ unless otherwise noted)

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

■ 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_J=25°C unless otherwise noted)

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

A. Pulse Test: Pulse Width ≤ 300μs, Duty cycle ≤ 2%.

B. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.

■ Typical Performance Characteristics

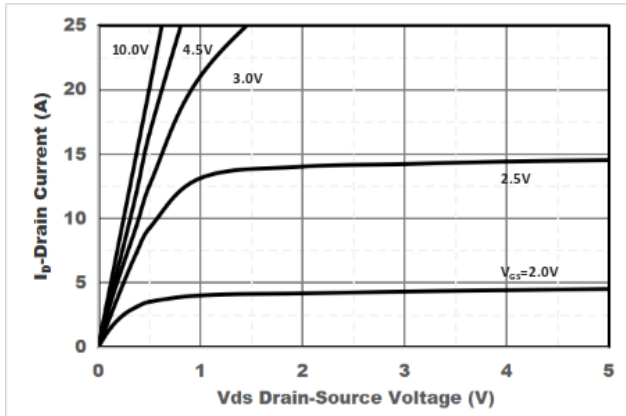


Figure1. Output Characteristics

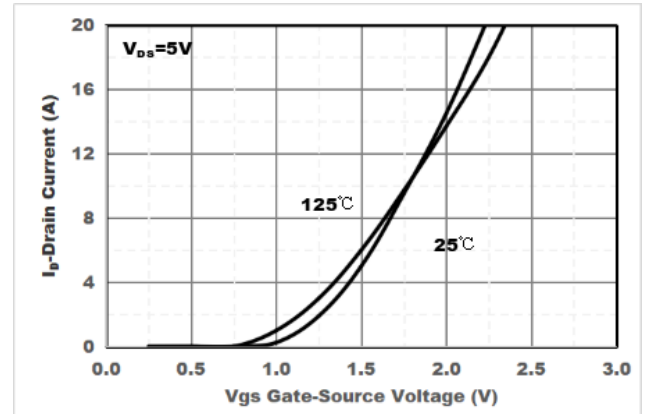


Figure2. Transfer Characteristics

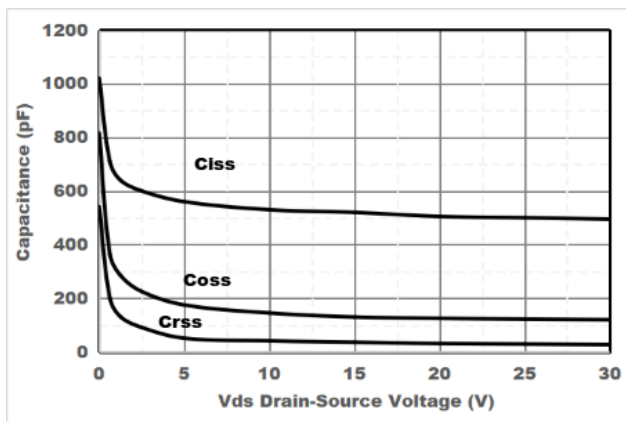


Figure3. Capacitance Characteristics

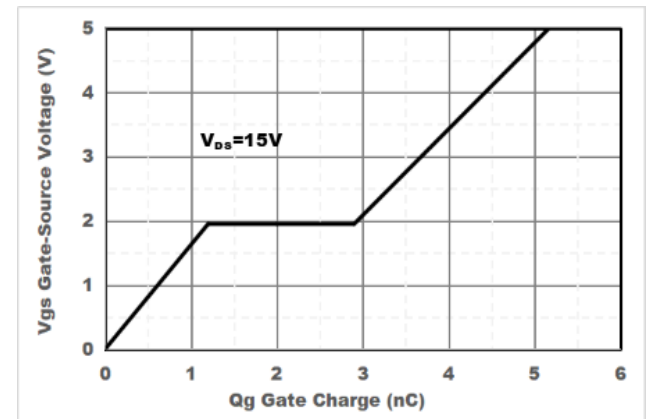


Figure4. Gate Charge

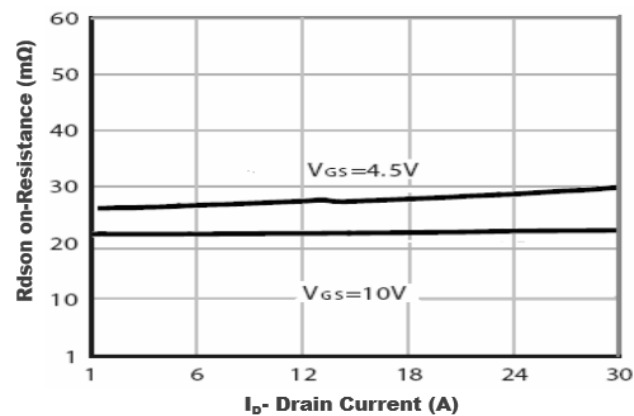


Figure5. Drain-Source on Resistance

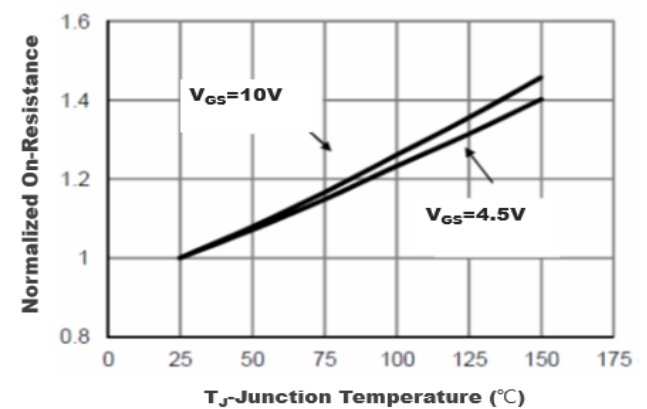


Figure6. Drain-Source on Resistance

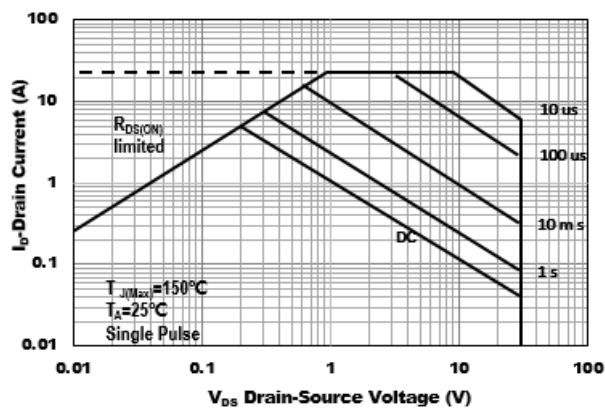


Figure7. Safe Operation Area

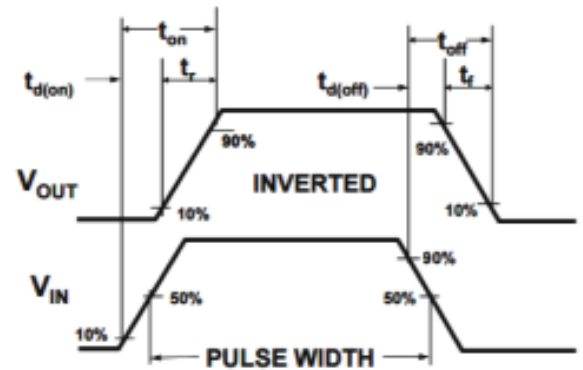
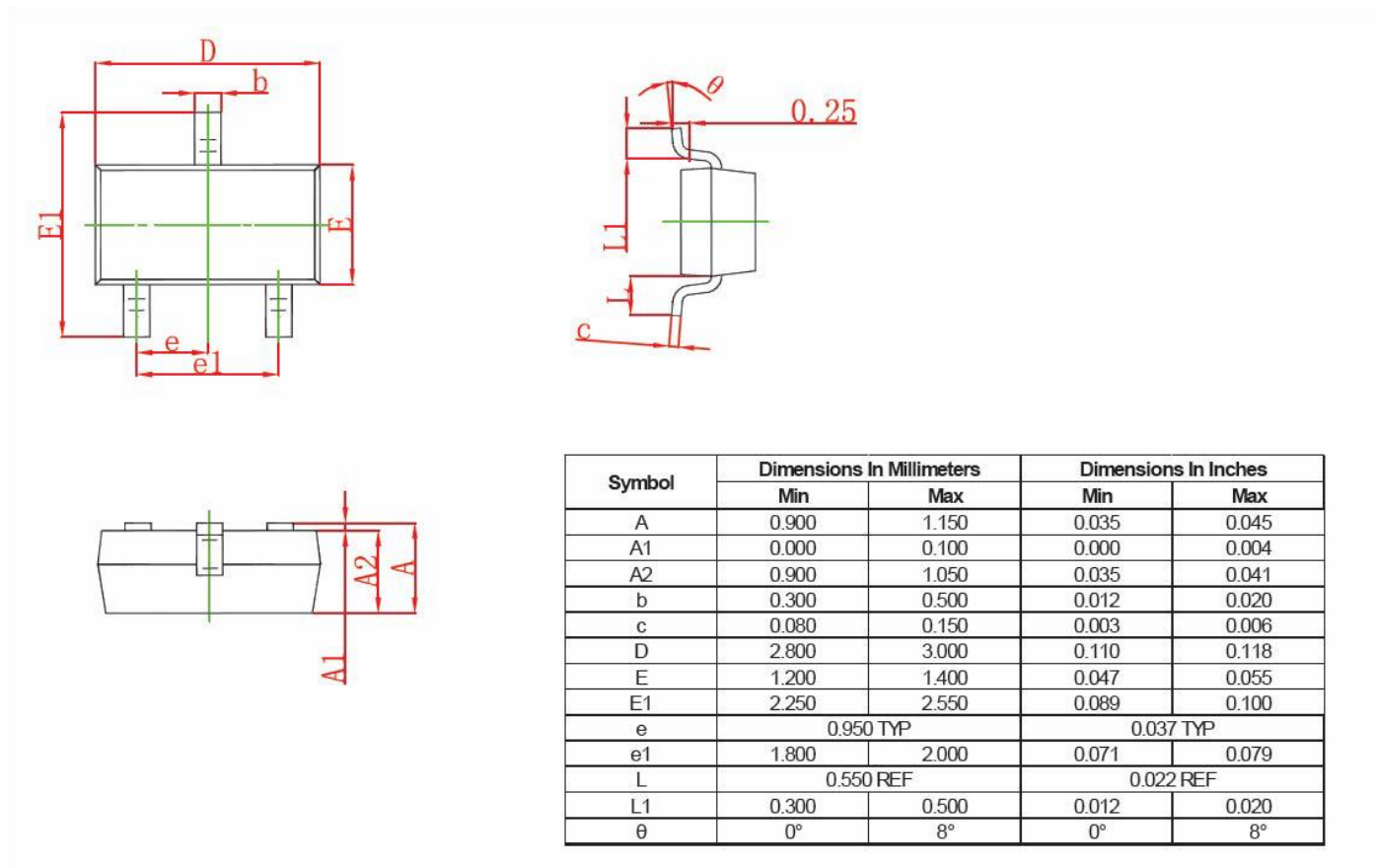


Figure8. Switching wave

■ SOT-23 Package information



■ SOT-23 Suggested Pad Layout

