

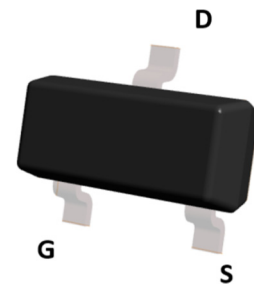
Description

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

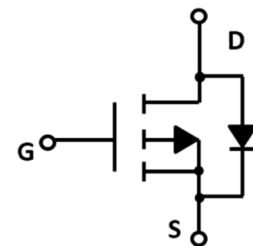
MOSFET Product Summary		
$V_{DS}(V)$	$R_{DS(on)}(m\Omega)$	$I_D(A)$
-30	60@ $V_{GS} = -10V$	-5.3
	70@ $V_{GS} = -4.5V$	
	85@ $V_{GS} = -2.5V$	

Applications

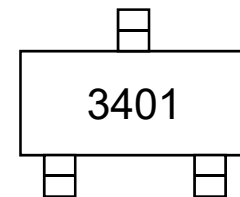
- Battery protection
- Load switch
- Power management



Top View



Circuit Diagram



Marking (Top View)

Absolute maximum rating@25°C

Rating		Symbol	Value	Units
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	-5.3	A
	$T_A = 70^\circ C$ @ Steady State		-4.2	
Pulsed Drain Current ¹⁾		I_{DM}	-27	A
Total Power Dissipation @ $T_A = 25^\circ C$		P_D	1.2	W
Thermal Resistance Junction-to-Ambient @ Steady State ²⁾		$R_{\theta JA}$	105	$^\circ C/W$
Junction and Storage Temperature Range		T_J, T_{STG}	-55~+150	$^\circ C$

Notes:

1) Pulse Test: Pulse Width $\leq 300\mu s$, Duty cycle $\leq 2\%$.

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

Electrical characteristics per line@25°C (unless otherwise specified)

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} = -24V, 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	-0.7	-0.9	-1.3	V
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} = -10V, I _D = -2.0A	-	47	60	mΩ
		V _{GS} = -4.5V, I _D = -2.0A	-	55	70	
		V _{GS} = -2.5V, I _D = -1.0A	-	65	85	
Diode Forward Voltage	V _{SD}	I _S = -5.3A, V _{GS} = 0V	-	-0.8	-1.2	V
Maximum Body-Diode Continuous Current	I _S		-	-	-5.3	A
Dynamic Parameters						
Input Capacitance	C _{iss}	V _{DS} = -15V, V _{GS} = 0V, f = 1MHz	-	680	-	pF
Output Capacitance	C _{oss}		-	105	-	
Reverse Transfer Capacitance	C _{rss}		-	68	-	
Switching Parameters						
Total Gate Charge	Q _g	V _{GS} = -10V, V _{DS} = -15V, I _D = -4.4A	-	7.2	-	nC
Gate Source Charge	Q _{gs}		-	1.2	-	
Gate Drain Charge	Q _{gd}		-	1.6	-	
Turn-on Delay Time	t _{D(on)}	V _{GS} = -10V, V _{DD} = -15V, R _L = 15Ω, I _D = -1A, R _{GEN} = 2.5Ω	-	15	-	ns
Turn-on Rise Time	t _r		-	63	-	
Turn-off Delay Time	t _{D(off)}		-	21	-	
Turn-off Fall Time	t _f		-	12	-	

Typical Characteristics

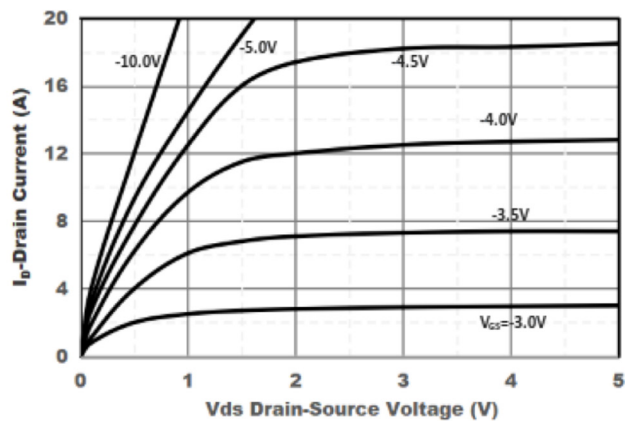


Figure1. Output Characteristics

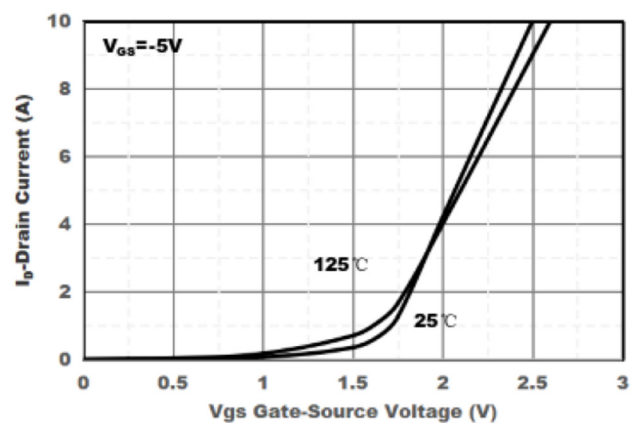


Figure2. Transfer Characteristics

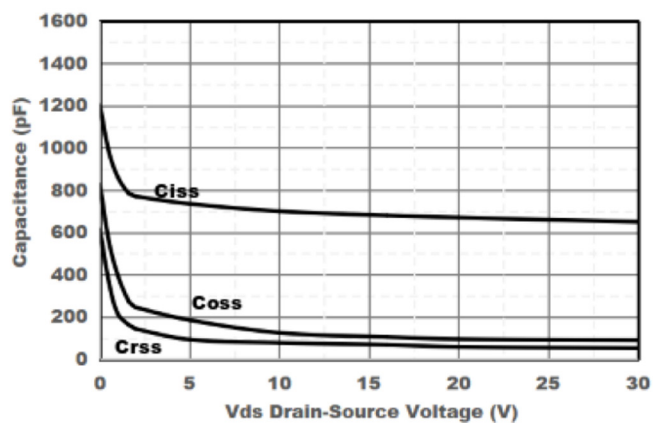


Figure3. Capacitance Characteristics

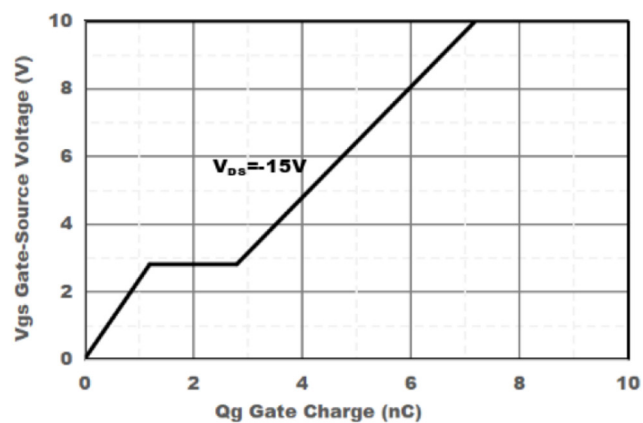


Figure4. Switching Characteristics

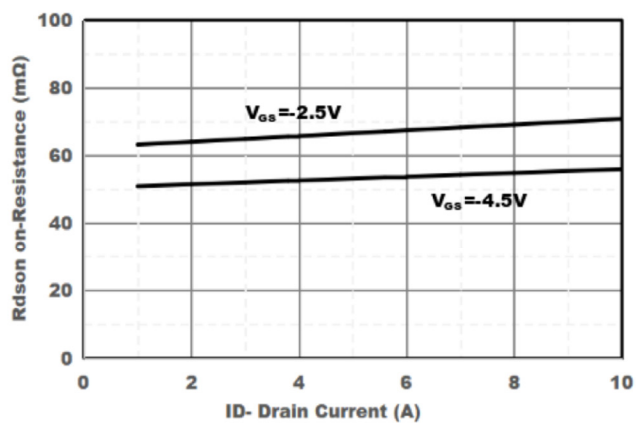


Figure5. Drain-Source on Resistance

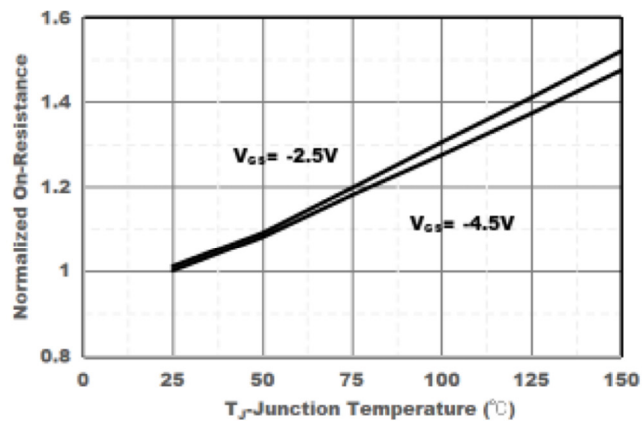


Figure6. Drain-Source on Resistance

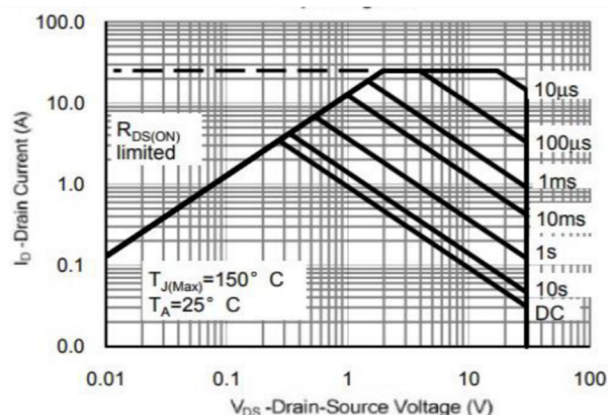


Figure7. Safe Operation Area

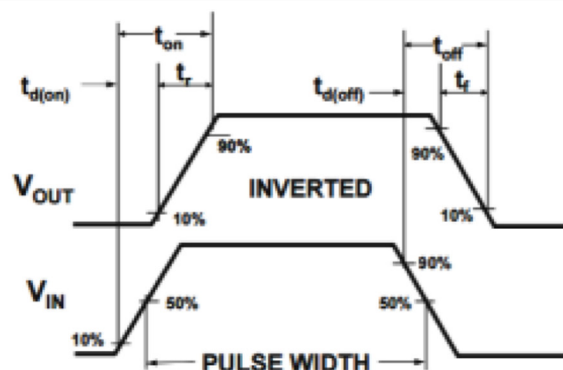
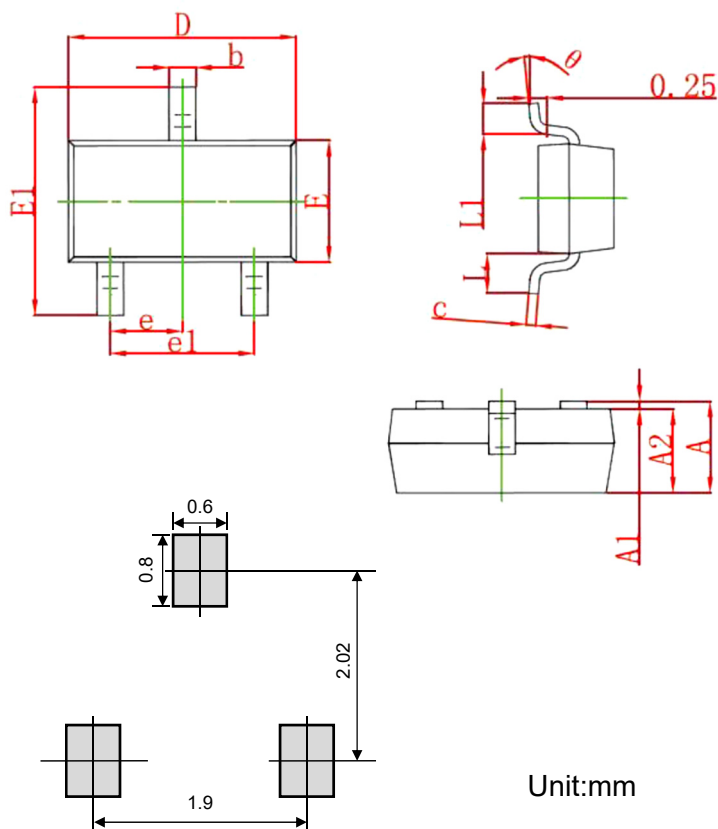


Figure8. Switching wave

Product dimension (SOT-23)




Suggested PCB Layout

Dim	Millimeters		Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 Typ.		0.037 Typ.	
e1	1.800	2.000	0.071	0.079
L	0.550 Ref.		0.022 Ref.	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

Ordering information

Device	Package	Reel	Shipping
PPMT3401	SOT-23 (Pb-Free)	7"	3000 / Tape & Reel


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