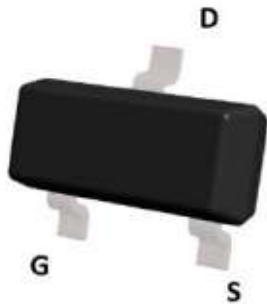


Product Summary

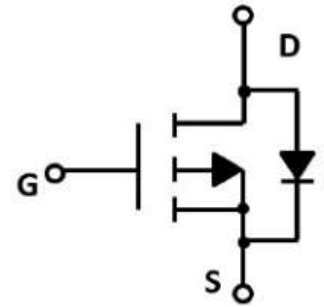
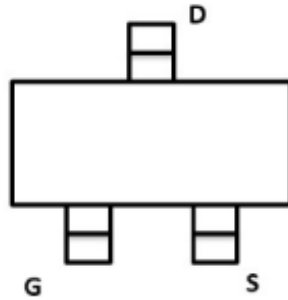
- VDS -30V
- ID -4.2A
- RDS(ON)(at VGS=-10V) = 38 mohm
- RDS(ON)(at VGS=-4.5V) = 42 mohm
- RDS(ON)(at VGS=-2.5V) = 53 mohm
- 100% ∇ VDS Tested

Applications

- Battery protection
- Power management
- Load switch



SOT-23-3L



Order Information

Product	Package	Marking	Reel Size	Reel	Carton
WTM3401	SOT-23-3L	A19LY	7inch	3000PCS	180000PCS

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}	± 12	V
Drain Current	$T_A=25^{\circ}\text{C}$	I_D	-4.2	A
	$T_A=70^{\circ}\text{C}$		-3.5	
Pulsed Drain Current ^A		I_{DM}	-27	A
Total Power Dissipation	$T_A=25^{\circ}\text{C}$	P_D	1.2	W
	$T_A=70^{\circ}\text{C}$		0.8	W
Thermal Resistance Junction-to-Ambient ^B		$R_{\theta JA}$	104	$^{\circ}\text{C/W}$
Junction and Storage Temperature Range		T_J, T_{STG}	-55~+150	$^{\circ}\text{C}$

Electrical Characteristics ($T_J=25^{\circ}\text{C}$ 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	-0.6	-0.9	-1.4	V
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =-10V, I _D =-4.4A		38	43	mΩ
		V _{GS} =-4.5V, I _D =-4A		42	46	
		V _{GS} =-2.5V, I _D =-2A		53	65	
Diode Forward Voltage	V _{SD}	I _S =-4.4A, V _{GS} =0V			-1.2V	
Dynamic Parameters						
Input Capacitance	C _{iss}	V _{DS} =-15V, V _{GS} =0V, f=1MHZ		730		pF
Output Capacitance	C _{oss}			80		
Reverse Transfer Capacitance	C _{rss}			68		
Switching Parameters						
Total Gate Charge	Q _g	V _{GS} =-10V, V _{DS} =-15V, I _D =-4.4A		22		nC
Gate-Source Charge	Q _{gs}			3.28		
Gate-Drain Charge	Q _{gd}			2.11		
Turn-on Delay Time	t _{D(on)}	V _{GS} =-10V, V _{DS} =-15V, I _D =4.4A R _{GEN} =3Ω		4.4		nC
Turn-on Rise Time	t _r			26		
Turn-off Delay Time	t _{D(off)}			49.2		
Turn-off fall Time	t _f			42.8		

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

B. $R_{\theta JA}$ is the sum of the junction-to-case and case-to-ambient thermal resistance, where the case thermal reference is defined as the solder mounting surface of the drain pins. $R_{\theta JC}$ is guaranteed by design, while $R_{\theta JA}$ is determined by the board design. The maximum rating presented here is based on mounting on a 1 in 2 pad of 2oz copper.

Typical Performance Characteristics

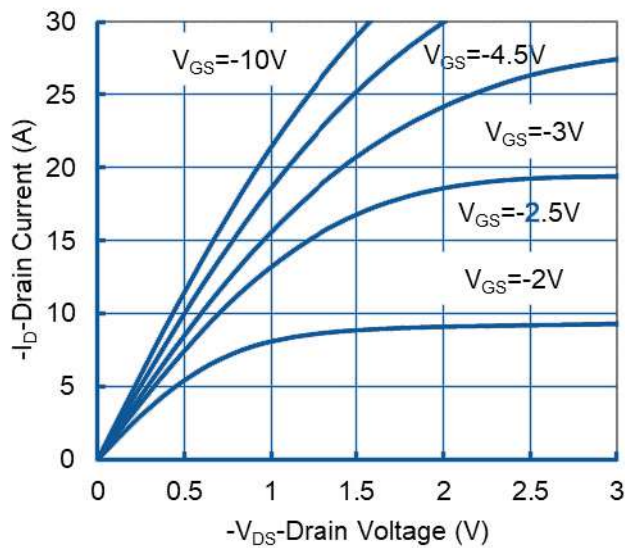


Figure1. Output Characteristics

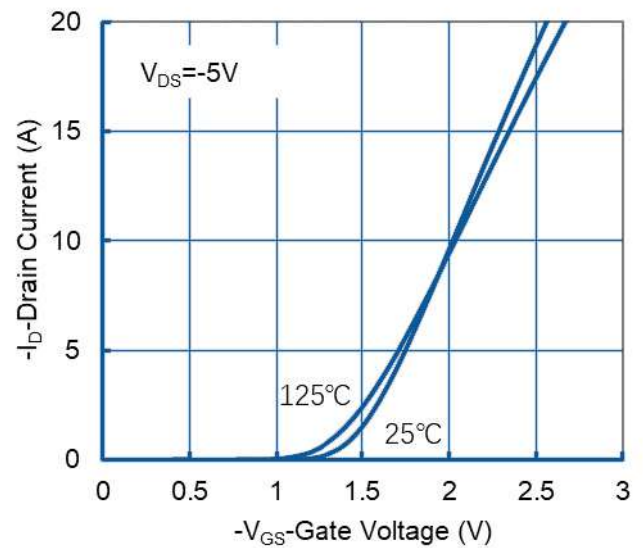


Figure2. Transfer Characteristics

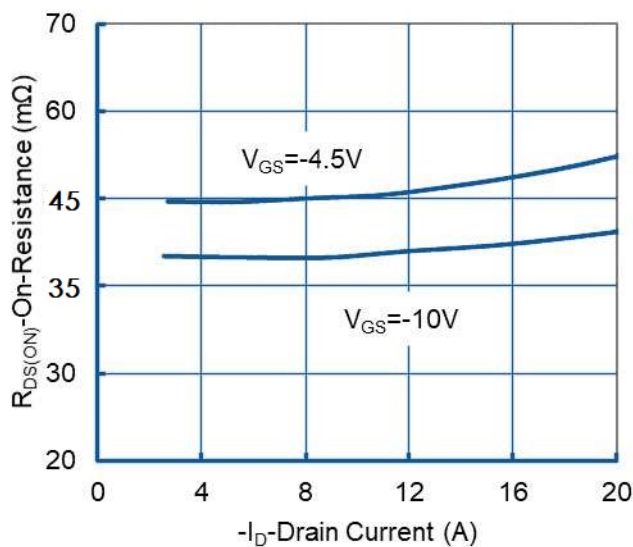


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

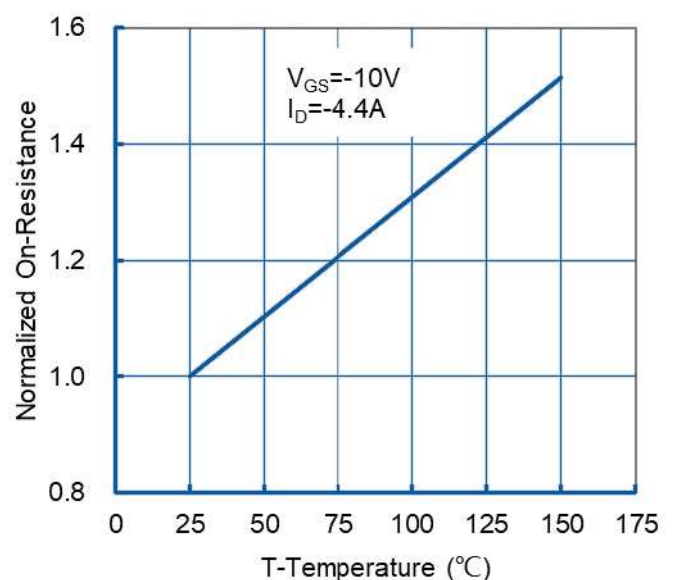


Figure 4: On-Resistance vs. Junction Temperature

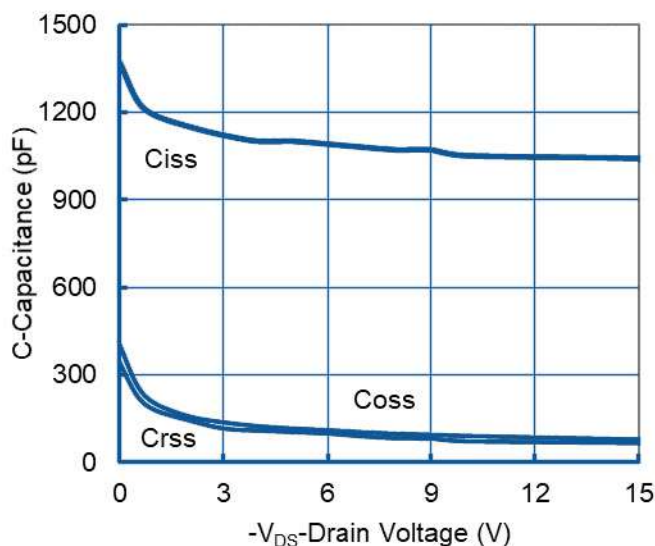


Figure5. Capacitance Characteristics

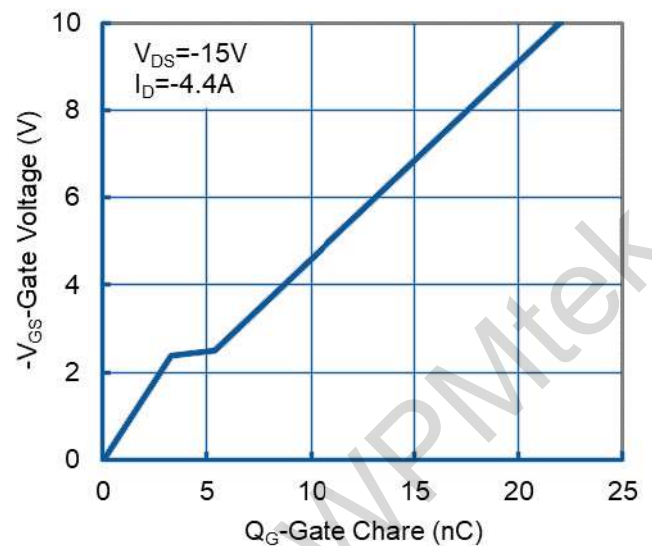


Figure6. Gate Charge

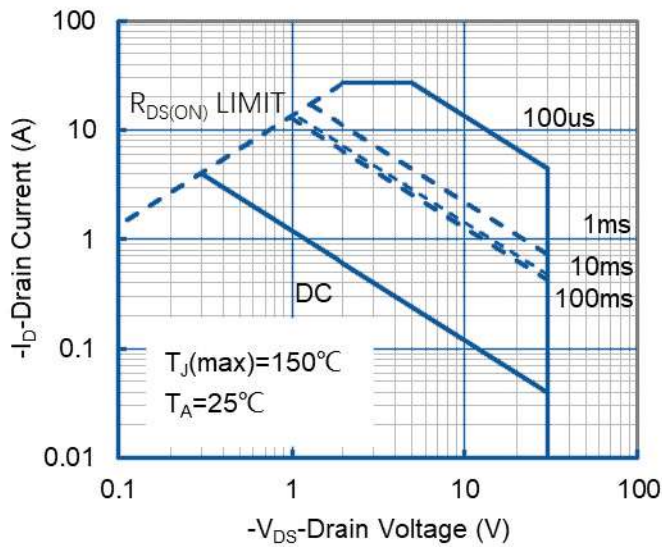


Figure7. Safe Operation Area

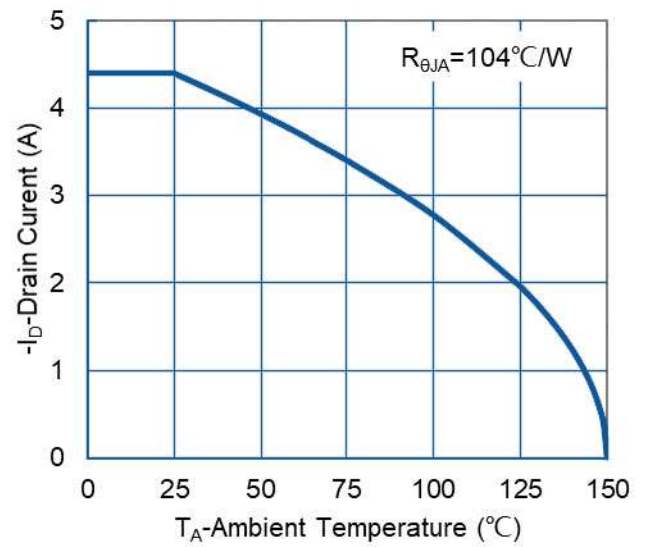


Figure8. Maximum Continuous Drain Current vs Ambient Temperature

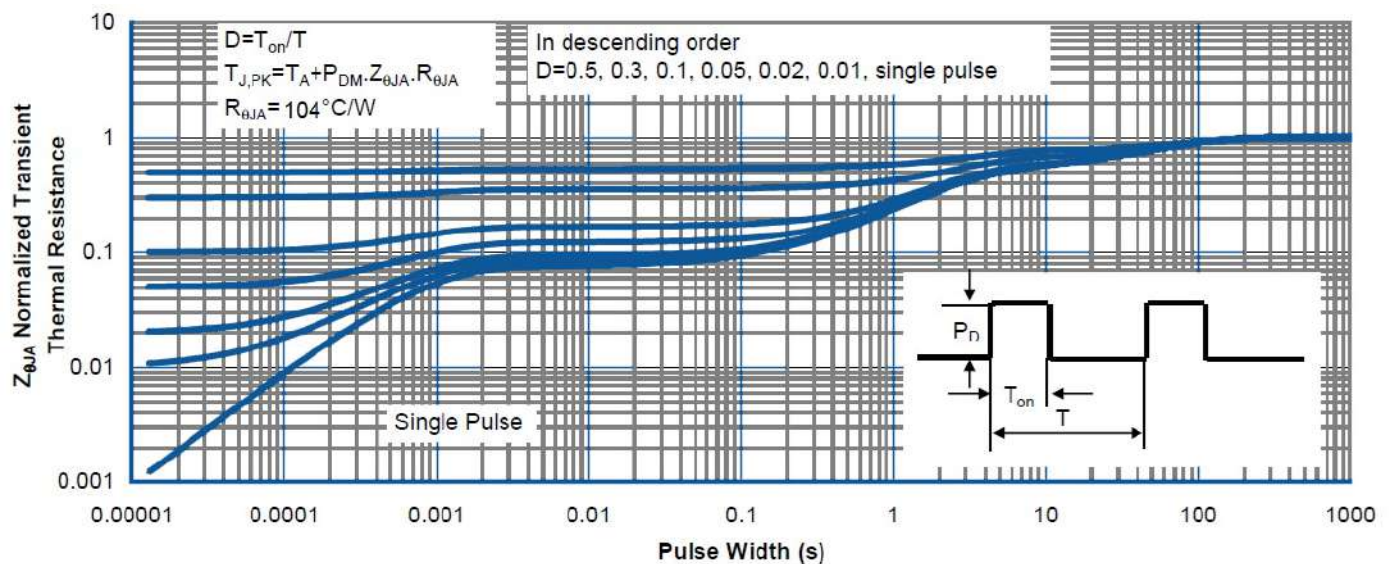
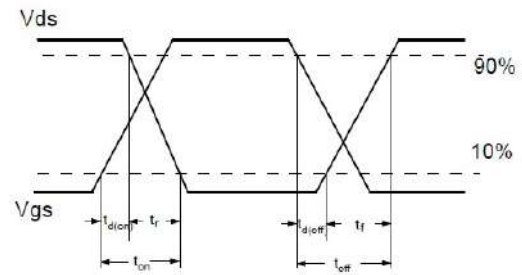
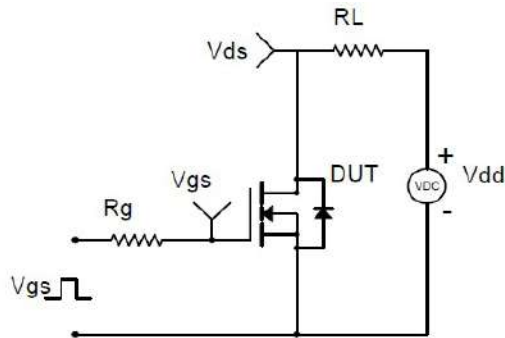
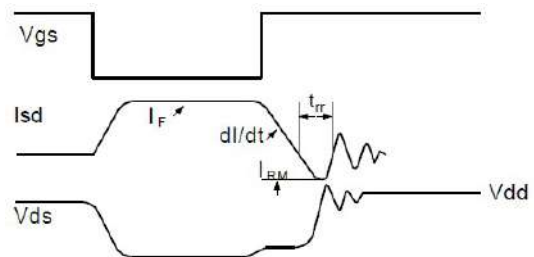
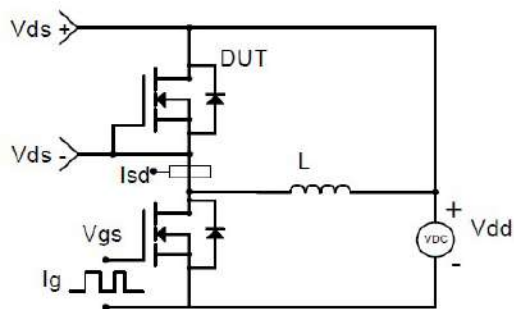


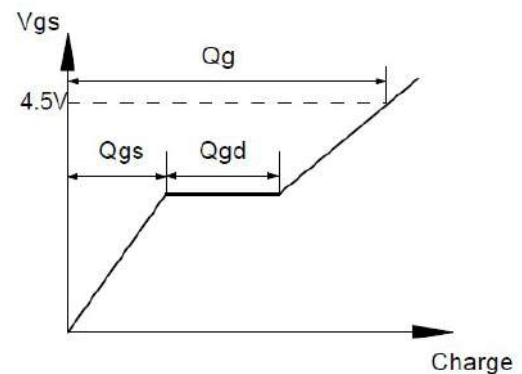
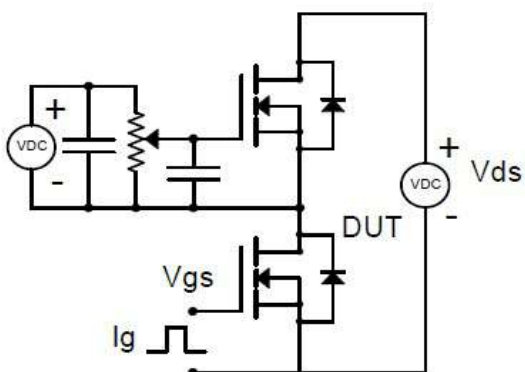
Figure9. Normalized Maximum Transient Thermal Impedance



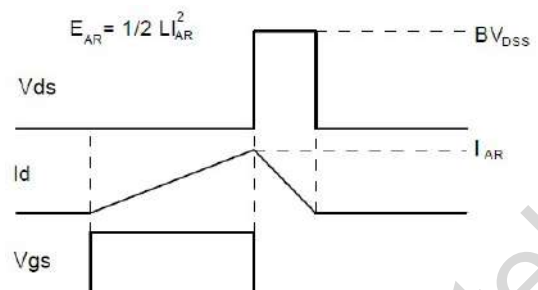
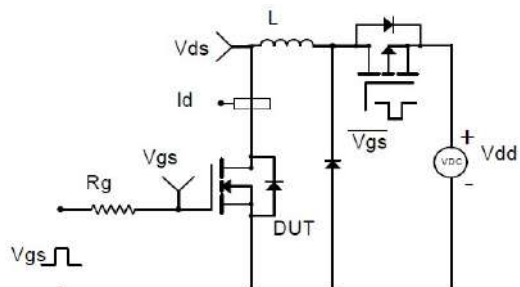
Resistive Switching Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms

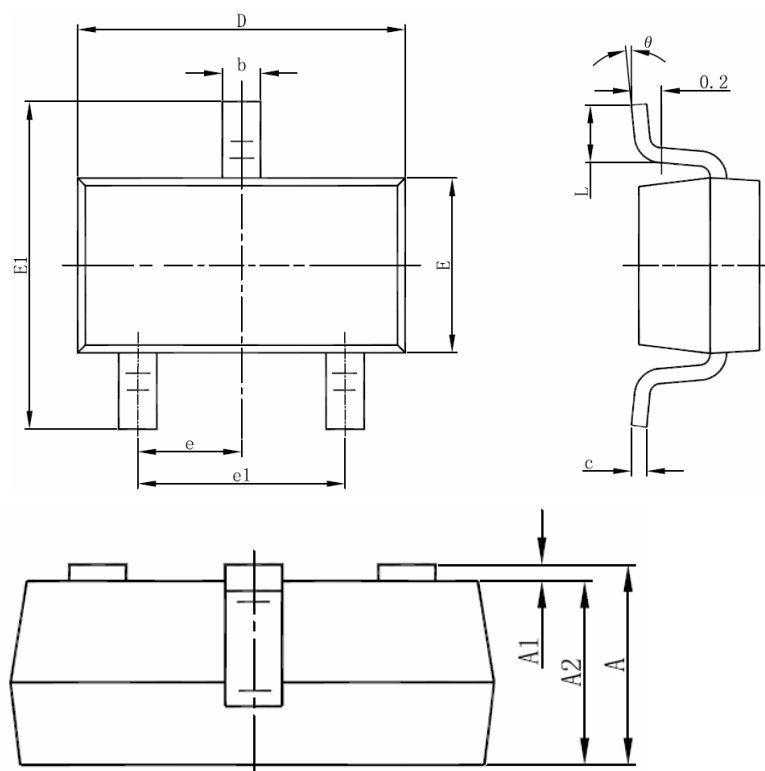


Gate Charge Test Circuit & Waveform



Unclamped Inductive Switching (UIS) Test Circuit & Waveforms

SOT-23 Package Information



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
E	1.500	1.700	0.059	0.067
E1	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
θ	0°	8°	0°	8°

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