

WPM2341A

P-Channel Enhancement Mode Mosfet

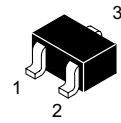
<http://www.willsemi.com>

Features

- Higher Efficiency Extending Battery Life
- Miniature SOT23-3 Surface Mount Package
- Super high density cell design for extremely low RDS (ON)

Applications

- DC/DC Converter
- Load Switch
- Battery Powered System
- LCD Display inverter
- Power Management in Portable, Battery Powered Products

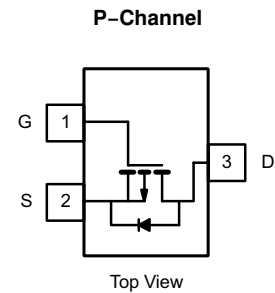


SOT 23-3

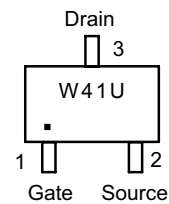
pin connections :

ABSOLUTE MAXIMUM RATINGS $T_A = 25^\circ\text{C}$, unless otherwise noted					
Parameter	Symbol	5 s	Steady State	Unit	
Drain-Source Voltage	V_{DS}	-20		V	
Gate-Source Voltage	V_{GS}	± 12			
Continuous Drain Current ($T_J = 150^\circ\text{C}$) ^a	I_D	$T_A = 25^\circ\text{C}$	-4.3	-3.5	A
		$T_A = 80^\circ\text{C}$	-3.2	-2.5	
Pulsed Drain Current	I_{DM}	-20		A	
Continuous Source Current (Diode Conduction) ^a	I_S	-1.7	-1	A	
Maximum Power Dissipation ^a	P_D	$T_A = 25^\circ\text{C}$	1.25	0.75	W
		$T_A = 80^\circ\text{C}$	0.7	0.42	
Operating Junction and Storage Temperature Range	T_J, T_{stg}	- 55 to 150		$^\circ\text{C}$	

a. Surface Mounted on FR4 Board using 1 in sq pad size, 2oz Cu.



Marking:



W 41= Specific Device Code
U = Date Code

Order information

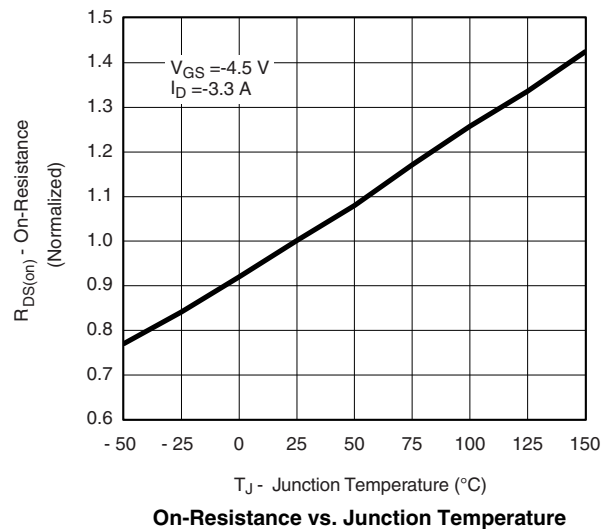
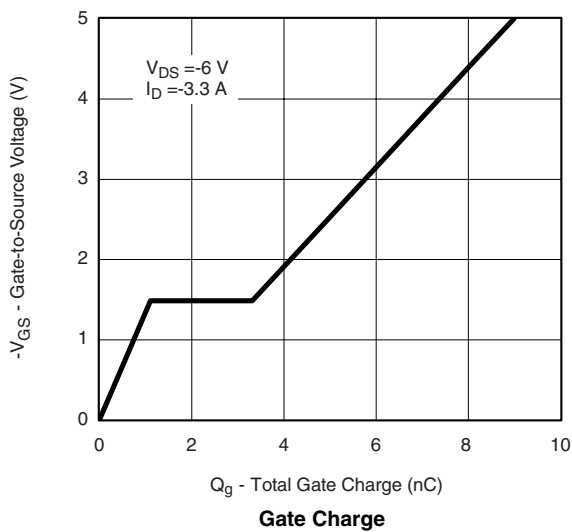
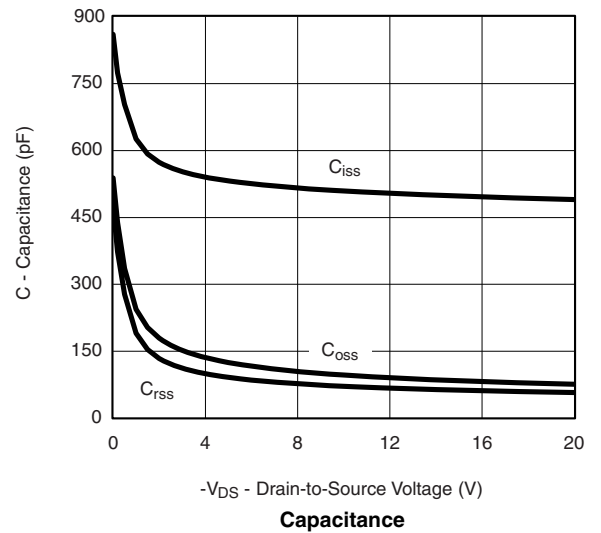
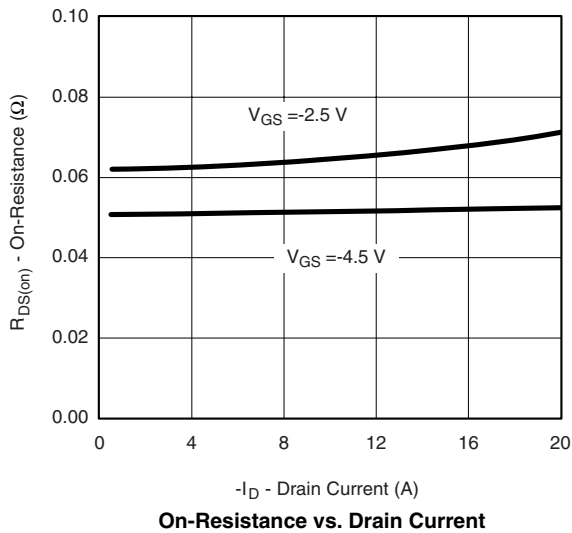
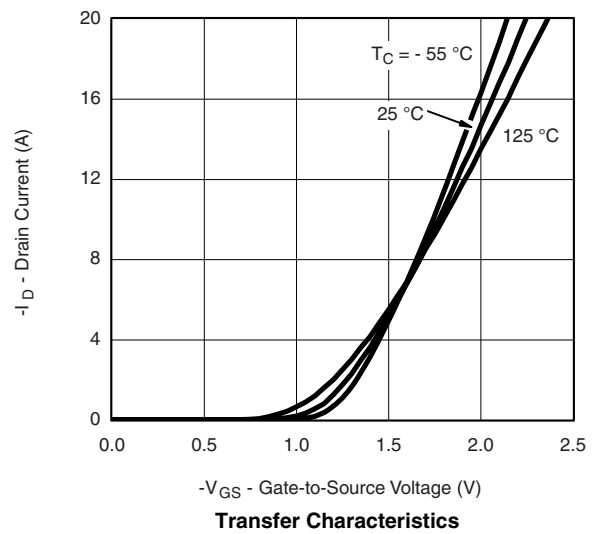
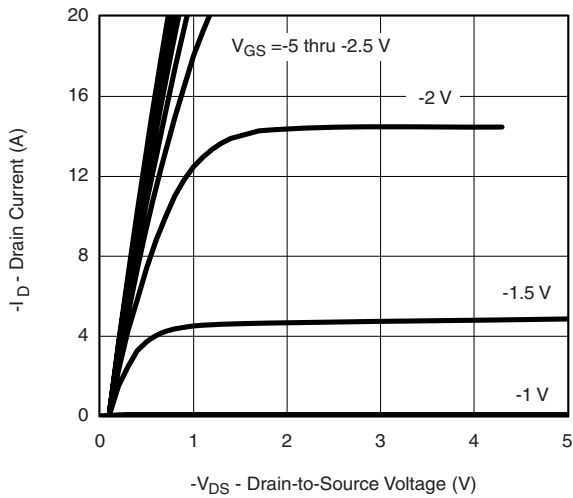
Part Number	Package	Shipping
WPM2341A-3/TR	SOT23-3	3000 Tape & Reel

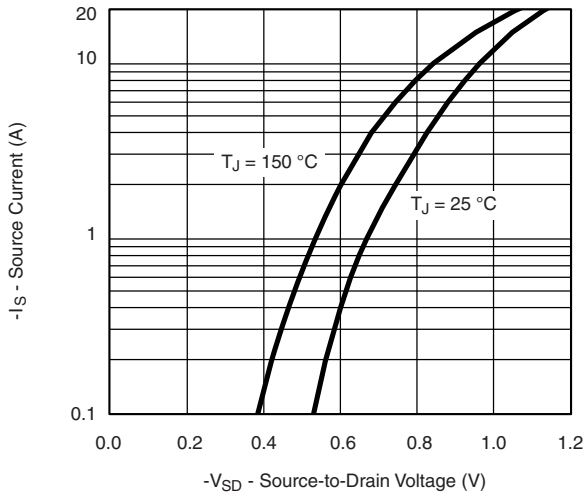
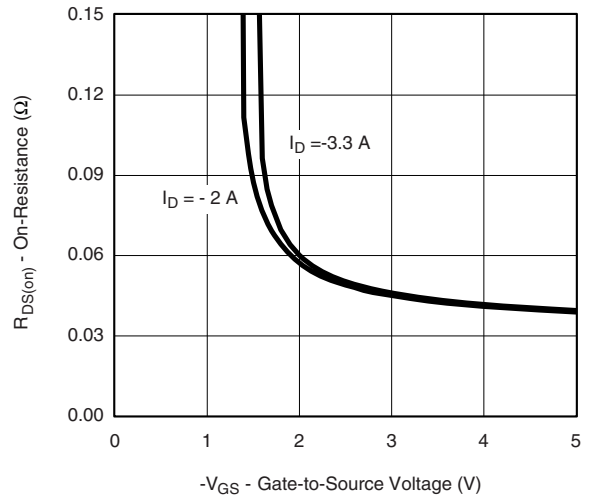
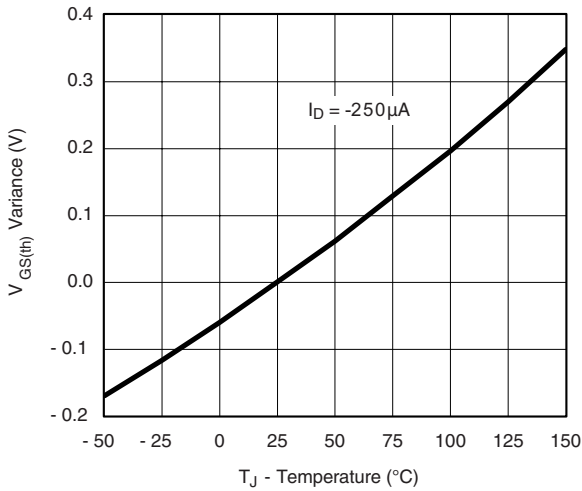
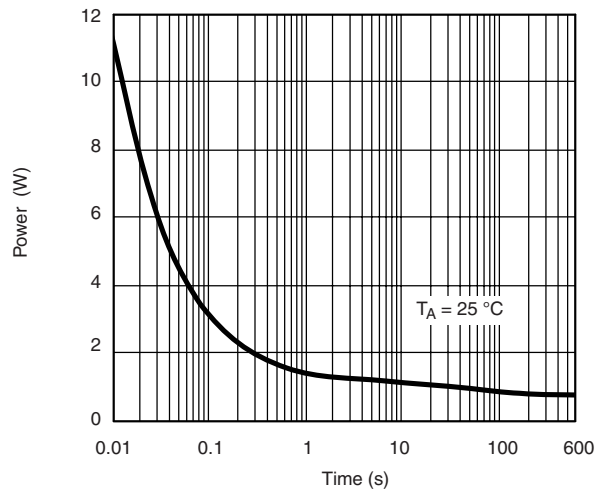
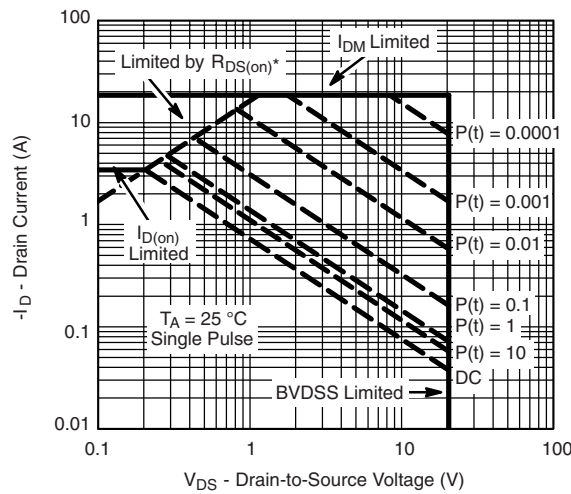
THERMAL RESISTANCE RATINGS					
Parameter		Symbol	Typical	Maximum	Unit
Junction-to-Ambient Thermal Resistance ^b	t ≤ 5 s	R _{θJA}	75	100	°C/W
	Steady State		125	165	

b. Surface Mounted on FR4 Board using 1 in sq pad size, 2oz Cu.

MOSFET ELECTRICAL CHARACTERISTICS(T_J =25 °C unless otherwise specified)

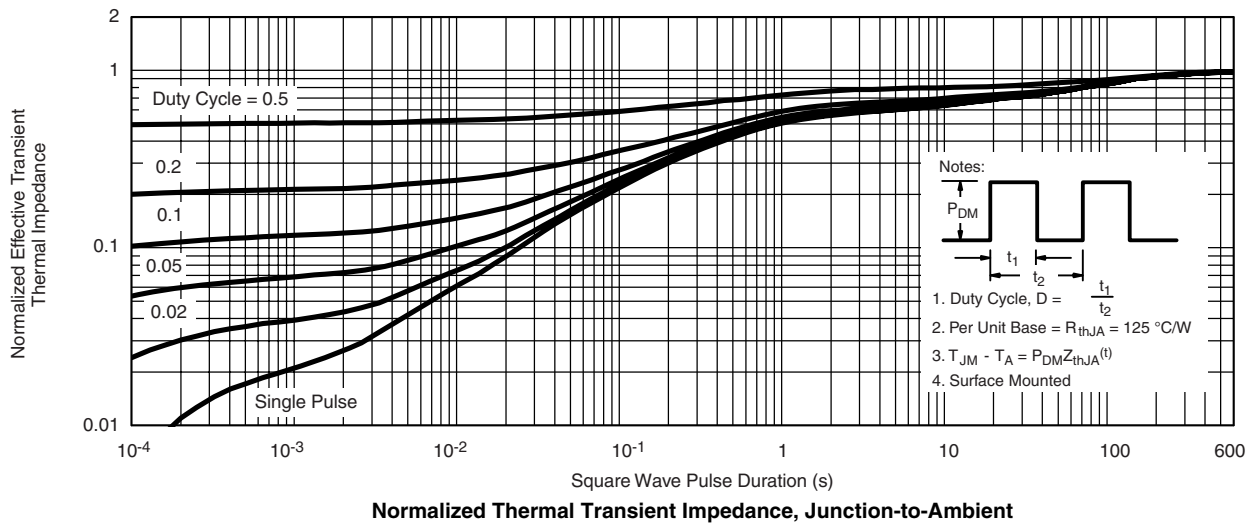
Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Off Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V, I _D = -250μA	-20			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -16V, V _{GS} = 0V			-1	μA
Gate -Source leakage current	I _{GSS}	V _{GS} = ±12 V, V _{DS} = 0V			± 100	nA
On Characteristics						
Gate Threshold Voltage	V _{GS(th)}	V _{GS} = V _{DS} , I _D = -250μA	-0.35	-0.63	-1.00	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = -4.5V, I _D = -3.3A		52	61	mΩ
		V _{GS} = -2.5V, I _D = -2.8 A		65	71	mΩ
Forward Transconductance	g _{FS}	V _{DS} = -5 V, I _D = -3.3A		3.0		S
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} = -6 V, V _{GS} = 0V, f = 1.0 MHz			700	pF
Output Capacitance	C _{oss}				160	pF
Reverse Transfer Capacitance	C _{iss}				120	pF
Switching Characteristics						
Turn-On Delay Time	t _{d(on)}	V _{GS} = -4.5V, V _{DD} = -6 V, I _D = -1.0A, R _G = 6.0Ω,			25	ns
Turn-On Rise Time	t _r				55	ns
Turn-Off Delay Time	t _{d(off)}				90	ns
Turn-Off Fall Time	t _f				60	ns
Total Gate Charge	Q _{G(TOT)}	V _{DS} = -6 V, I _D = -3.3A, V _{GS} = -4.5V		8	13	nC
Threshold gate charge	Q _{G(TH)}			0.2		nC
Gate-Source Charge	Q _{GS}			1.2		nC
Gate-Drain Charge	Q _{GD}			2.2		nC
Drain-Source Diode Characteristics and Maximun Ratings						
Forward Diode Voltage	V _{SD}	V _{GS} = 0V, I _S = -1.6A		-0.8		V

Typical Characteristics ($T_J = 25^\circ\text{C}$ unless otherwise noted)


Typical Characteristics ($T_J = 25^\circ\text{C}$ unless otherwise noted)

Source-Drain Diode Forward Voltage

On-Resistance vs. Gate-to-Source Voltage

Threshold Voltage

Single Pulse Power


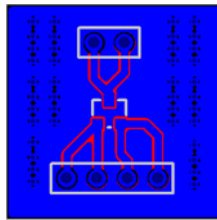
* $V_{GS} >$ minimum V_{GS} at which $R_{DS(on)}$ is specified

Safe Operating Area

Typical Characteristics ($T_J = 25^\circ\text{C}$ unless otherwise noted)


Power Dissipation Characteristics

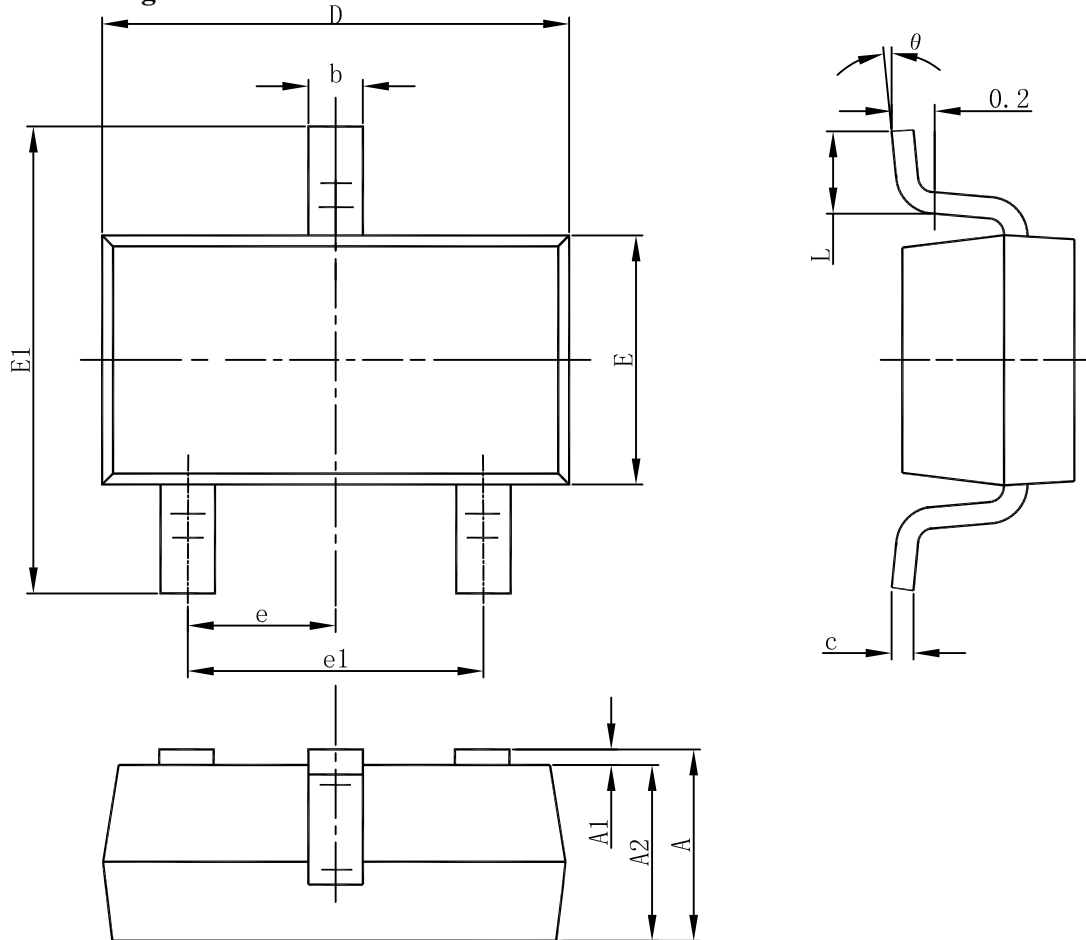
1. The package of WPM2341A is SOT23-3, surface mounted on FR4 Board using 1 in sq pad size, 2 oz Cu, $R_{\theta JA}$ is 125 °C/W.
2. The power dissipation P_D is based on $T_{J(MAX)}=150^{\circ}\text{C}$, and the relation between T_J and P_D is $T_J = T_a + R_{\theta JA} * P_D$, the maximum power dissipation is determined by $R_{\theta JA}$.
3. The $R_{\theta JA}$ is the thermal impedance from junction to ambient, using larger PCB pad size can get smaller $R_{\theta JA}$ and result in larger maximum power dissipation.



125 °C/W when mounted on
a 1 in² pad of 2 oz copper.

Packaging Information

SOT23-3 Package Outline Dimension



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°