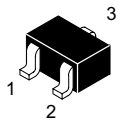
WPM2341A
P-Channel Enhancement Mode Mosfet

Http://www.sh-willsemi.com

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

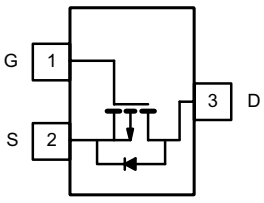


SOT 23-3

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

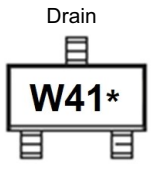
pin connections :

P–Channel



Top View

Marking:



W 41= Device Code
* = Month code (A~Z)

ABSOLUTE MAXIMUM RATINGS T_A = 25 °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 °C)[a]	T_A=25°C	I_D	-4.3	-3.5	A
	T_A=80°C		-3.2	-2.5	
Pulsed Drain Current		I_{DM}	-20		
Continuous Source Current (Diode Conduction) [a]		I_S	-1.7	-1	
Maximum Power Dissipation [a]	T_A=25°C	P_D	1.25	0.75	W
	T_A=80°C		0.7	0.42	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	- 55 to 150		°C

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

Order information

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

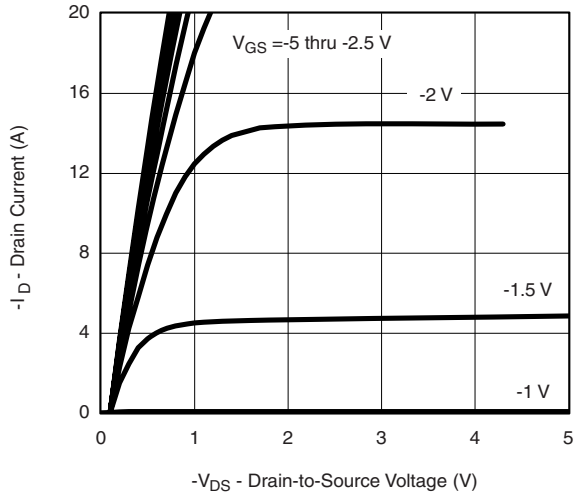
THERMAL RESISTANCE RATINGS					
Parameter		Symbol	Typical	Maximum	Unit
Junction-to-Ambient Thermal Resistance [b]	t ≤ 5 s	$R_{\theta JA}$	75	100	°C/W
	Steady State		125	165	

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

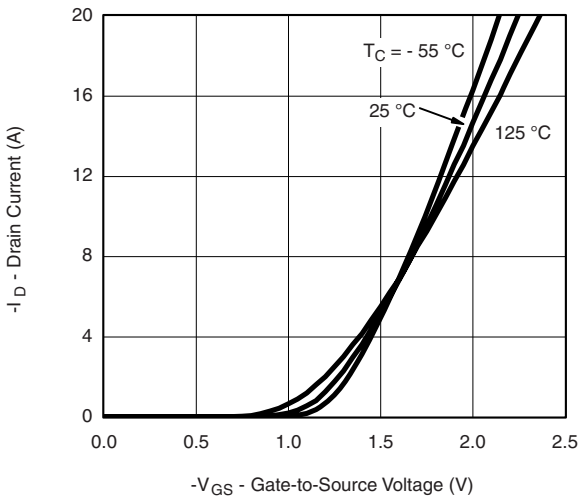
MOSFET ELECTRICAL CHARACTERISTICS(T_J =25 ℃ unless otherwise specified)

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_{rss}				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

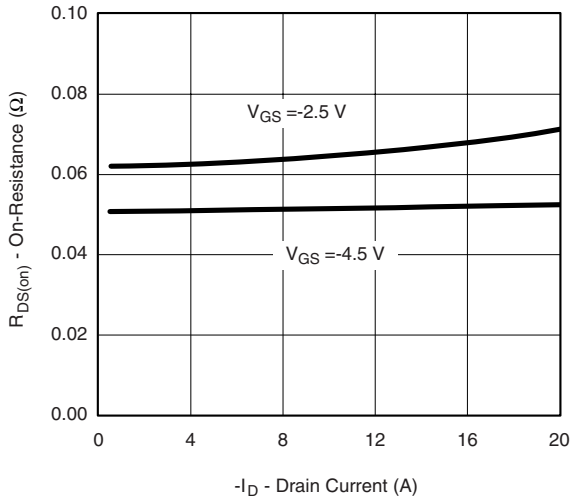
Typical Characteristics (T_J = 25°C unless otherwise noted)



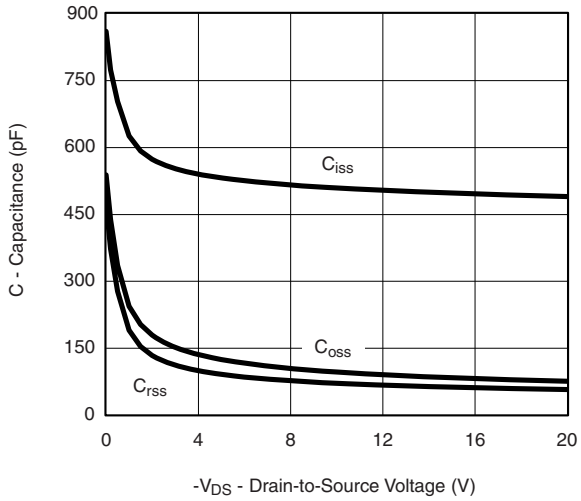
Output Characteristics



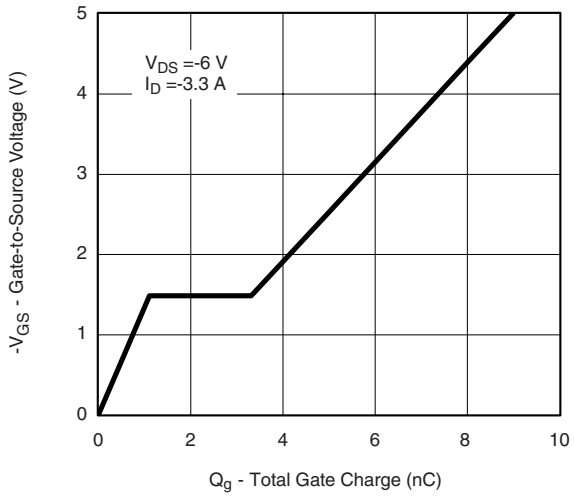
Transfer Characteristics



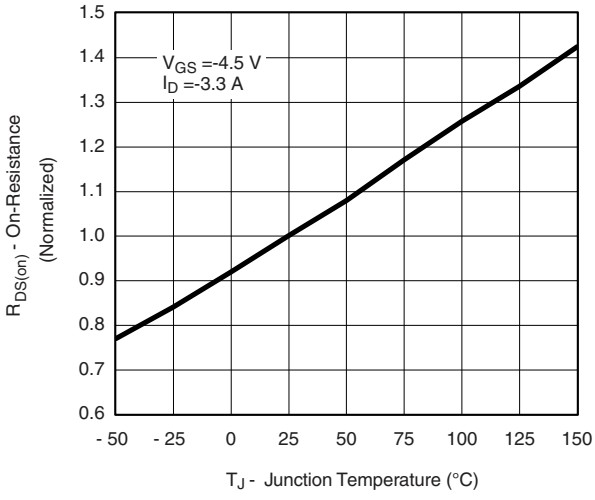
On-Resistance vs. Drain Current



Capacitance

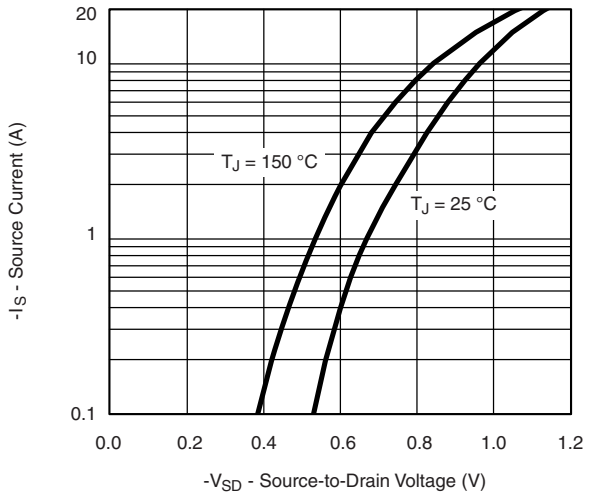


Gate Charge

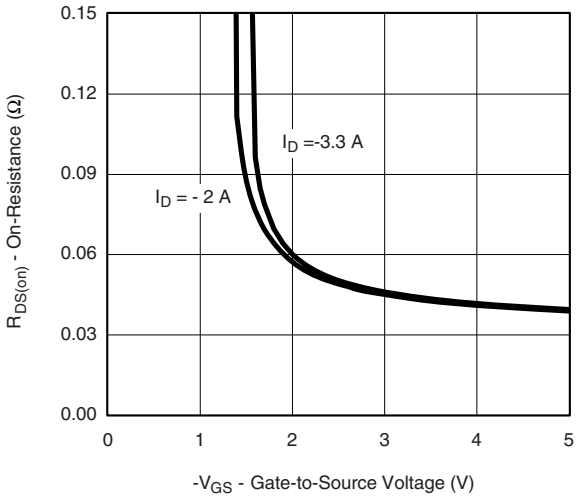


On-Resistance vs. Junction Temperature

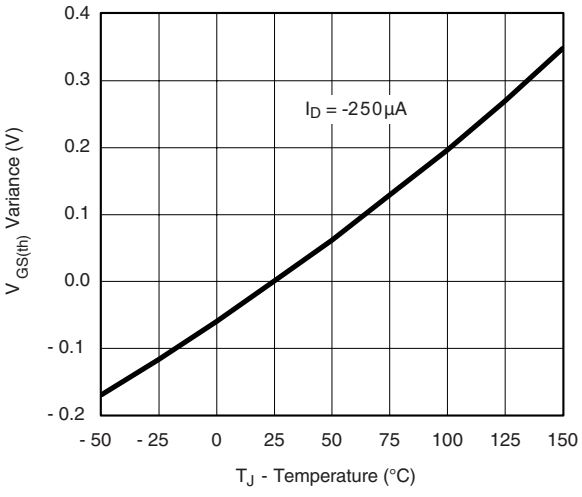
Typical Characteristics (T_J = 25°C unless otherwise noted)



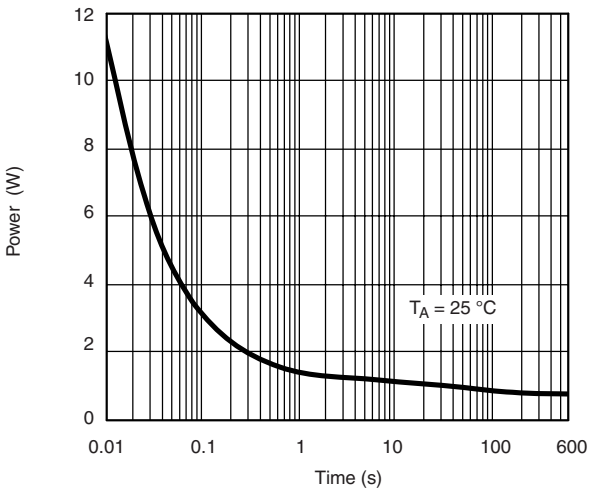
Source-Drain Diode Forward Voltage



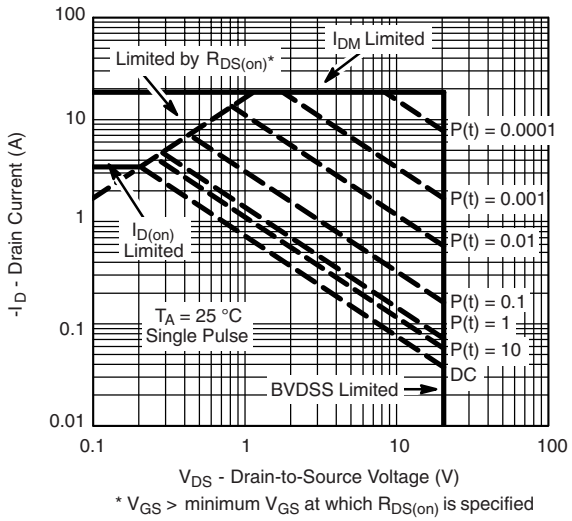
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



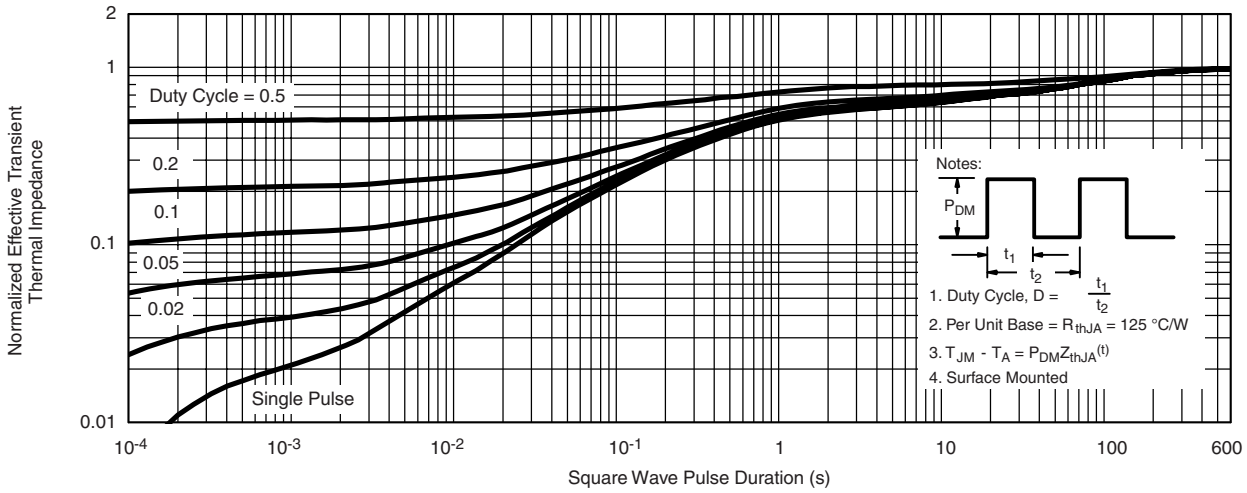
Single Pulse Power



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

Safe Operating Area

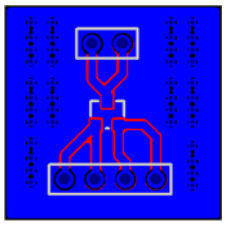
Typical Characteristics (T_J = 25°C unless otherwise noted)



Normalized Thermal Transient Impedance, Junction-to-Ambient

Power Dissipation Characteristics

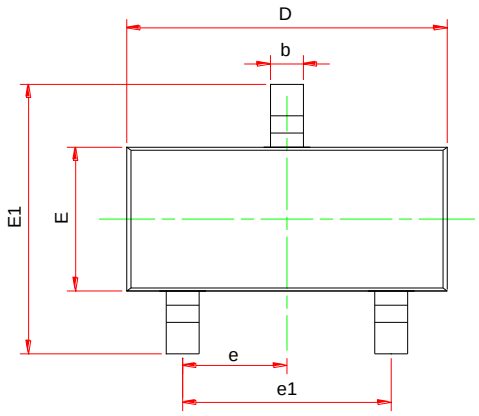
1. The package of WPM2341A is SOT23-3, surface mounted on FR4 Board using 1 in sq pad size，2 oz Cu，$R_{\theta JA}$ is 125 ℃/W.
2. The power dissipation P_D is based on $T_{J(MAX)}$=150°C, and the relation between T_J and P_D is $T_J = T_a + R_{\theta JA} * P_D$, the maximum power dissipation is determined 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.



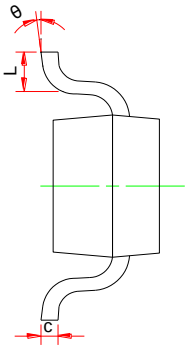
125 ℃/W when mounted on
a 1 in^2 pad of 2 oz copper.

PACKAGE OUTLINE DIMENSIONS

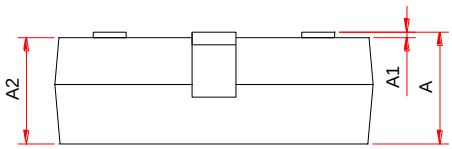
SOT-23-3L



TOP VIEW



SIDE VIEW



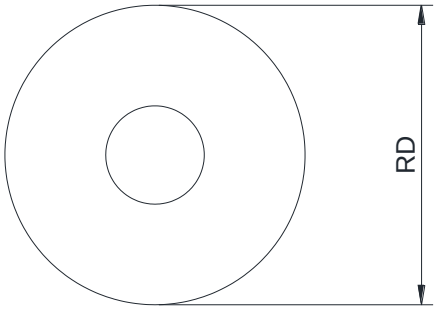
SIDE VIEW

Symbol	Dimensions in Millimeters		
	Min.	Typ.	Max.
A	-	-	1.25
A1	0.00	-	0.15
A2	1.00	1.10	1.20
b	0.30	0.40	0.50
c	0.10	-	0.20
D	2.82	2.92	3.03
E1	2.60	2.80	3.00
E	1.50	1.62	1.73
e	0.95 BSC		
e1	1.80	1.90	2.00
L	0.30	0.45	0.60
θ	0°	-	8°

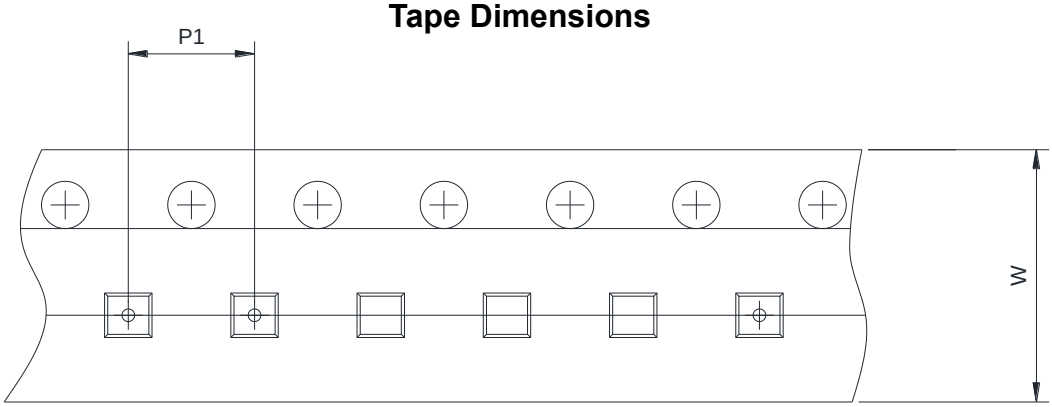
TAPE AND REEL INFORMATION

Reel Dimensions

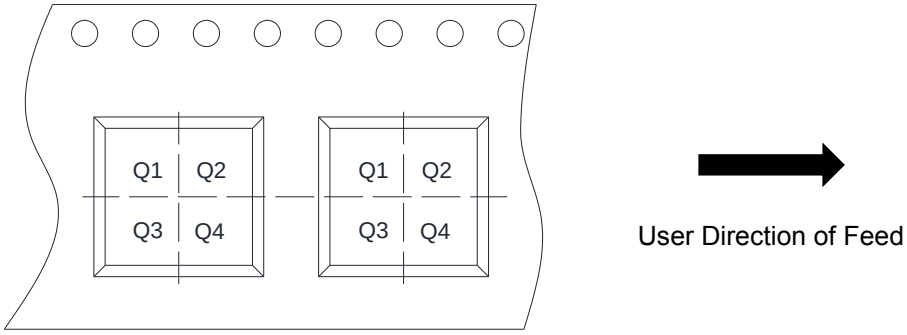
Reel Dimensions



Tape Dimensions



Quadrant Assignments For PIN1 Orientation In Tape



RD	Reel Dimension	☑ 7inch	☐ 13inch		
W	Overall width of the carrier tape	☑ 8mm	☐ 12mm	☐ 16mm	
P1	Pitch between successive cavity centers	☐ 2mm	☑ 4mm	☐ 8mm	
Pin1	Pin1 Quadrant	☐ Q1	☐ Q2	☑ Q3	☐ Q4

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