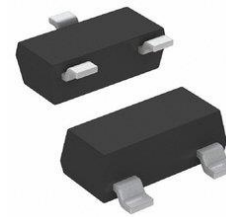


WPM6207

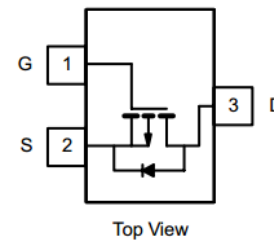
Single P-Channel, -20V, -5.7A, Power MOSFET

www.sh-willsemi.com

V _{DS} (V)	Max R _{ds(on)} (mΩ)
-20	32 @ V _{GS} = - 4.5V
	40 @ V _{GS} = - 2.5V
	60 @ V _{GS} = - 1.8V

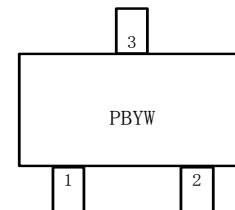


SOT-23-3



Top View

Pin configuration (Top view)



PB= Specific Device Code
Y = Year
W= Week

Marking

Descriptions

The WPM6207 is P-Channel enhancement MOS Field Effect Transistor. Uses advanced trench technology and design to provide excellent R_{DS(ON)} with low gate charge. This device is suitable for use in DC-DC conversion, power switch and charging circuit. Standard Product WPM6207 is Pb-free.

Features

- Trench Technology
- Supper high density cell design
- Excellent ON resistance for higher DC current
- Extremely Low Threshold Voltage
- Small package SOT-23-3

Applications

- Power Management in Notebook Computer
- Portable Equipment
- Battery Powered Systems

Order information

Device	Package	Shipping
WPM6207-3/TR	SOT-23-3	3000/Reel&Tape

Absolute Maximum ratings

Parameter		Symbol	10 S	Steady State	Unit
Drain-Source Voltage		V_{DS}	-20		V
Gate-Source Voltage		V_{GS}	± 12		
Continuous Drain Current ^{a d}	$T_A=25^\circ\text{C}$	I_D	-6.4	-5.7	A
	$T_A=70^\circ\text{C}$		-5.1	-4.6	
Maximum Power Dissipation ^{a d}	$T_A=25^\circ\text{C}$	P_D	1.5	1.2	W
	$T_A=70^\circ\text{C}$		1	0.8	
Continuous Drain Current ^{b d}	$T_A=25^\circ\text{C}$	I_D	-5.5	-4.8	A
	$T_A=70^\circ\text{C}$		-4.4	-3.9	
Maximum Power Dissipation ^{b d}	$T_A=25^\circ\text{C}$	P_D	1.1	0.8	W
	$T_A=70^\circ\text{C}$		0.7	0.5	
Pulsed Drain Current ^c		I_{DM}	-20		A
Operating Junction Temperature		T_J	-55 to 150		$^\circ\text{C}$
Lead Temperature		T_L	260		$^\circ\text{C}$
Storage Temperature Range		T_{stg}	-55 to 150		$^\circ\text{C}$

Thermal resistance ratings

Parameter		Symbol	Typical	Maximum	Unit
Junction-to-Ambient Thermal Resistance ^a	$t \leq 10 \text{ s}$	$R_{\theta JA}$	65	80	$^\circ\text{C/W}$
	Steady State		85	100	
Junction-to-Ambient Thermal Resistance ^b	$t \leq 10 \text{ s}$	$R_{\theta JA}$	90	110	
	Steady State		115	140	
Junction-to-Case Thermal Resistance		$R_{\theta JC}$	40	60	

a Surface mounted on FR-4 Board using 1 square inch pad size, 1oz copper

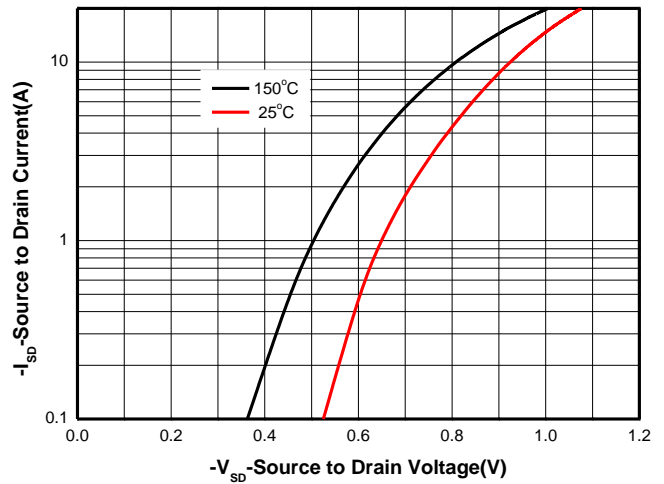
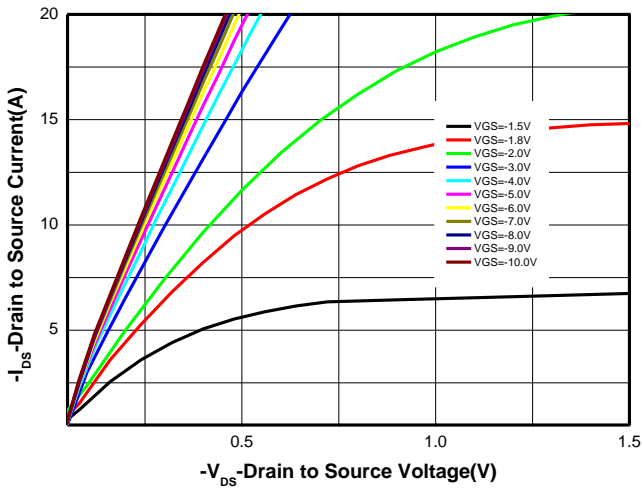
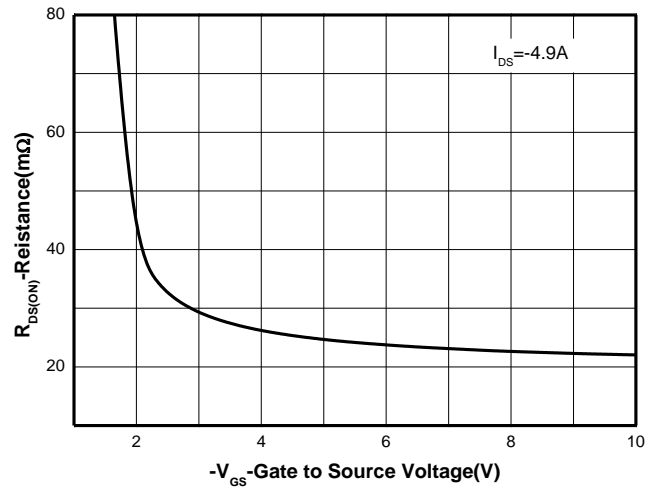
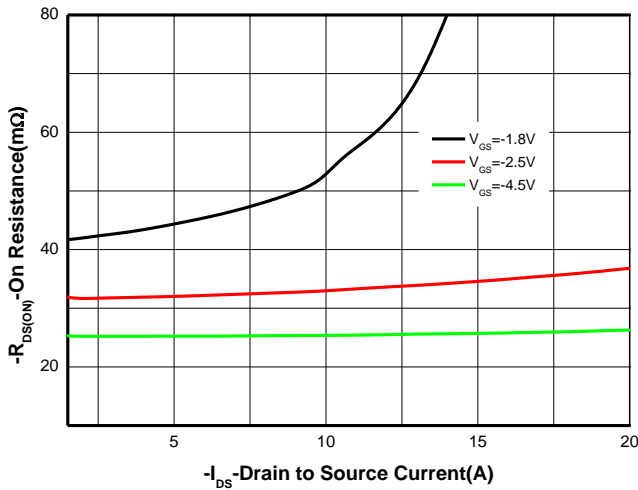
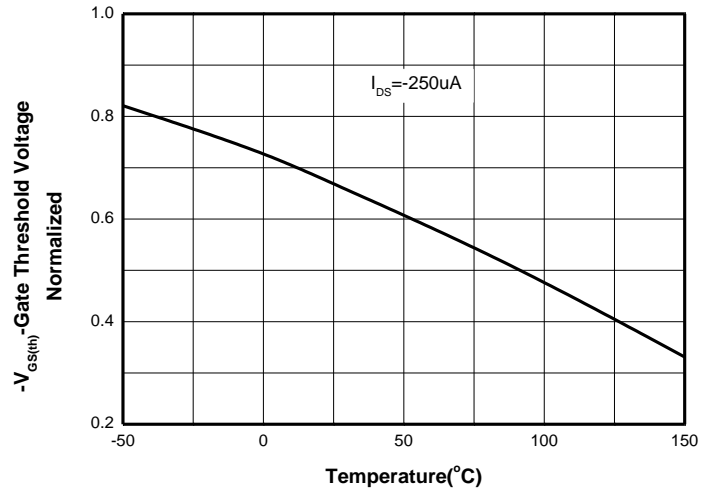
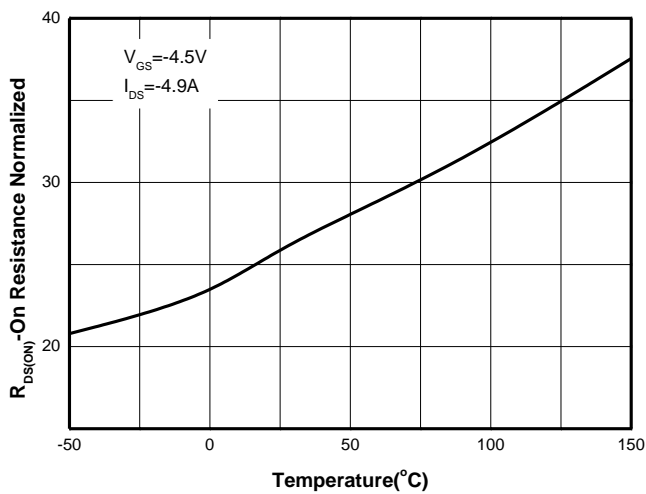
b Surface mounted on FR-4 board using minimum pad size, 1oz copper

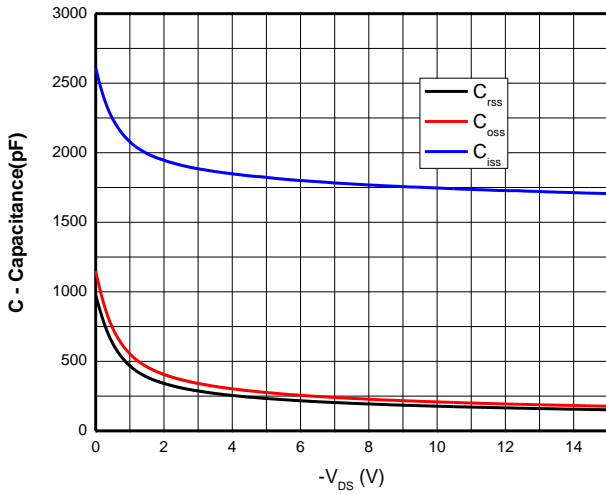
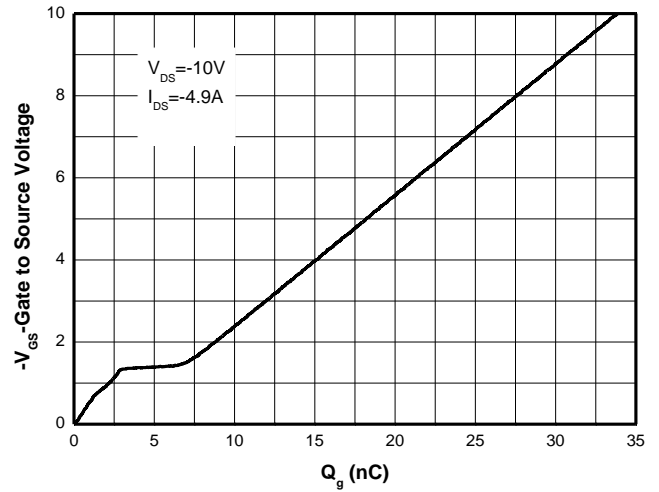
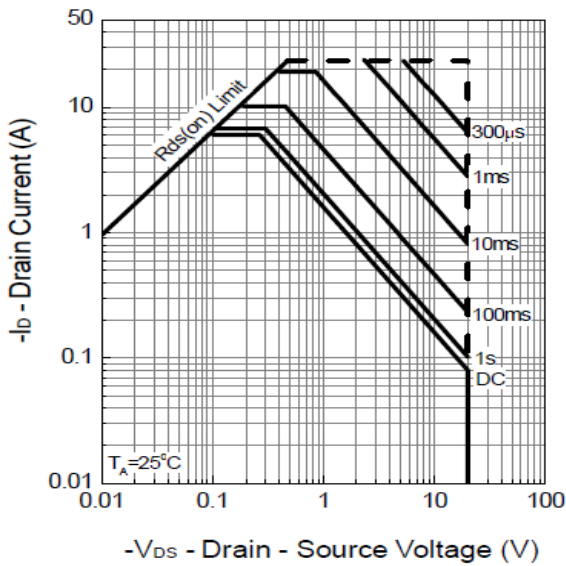
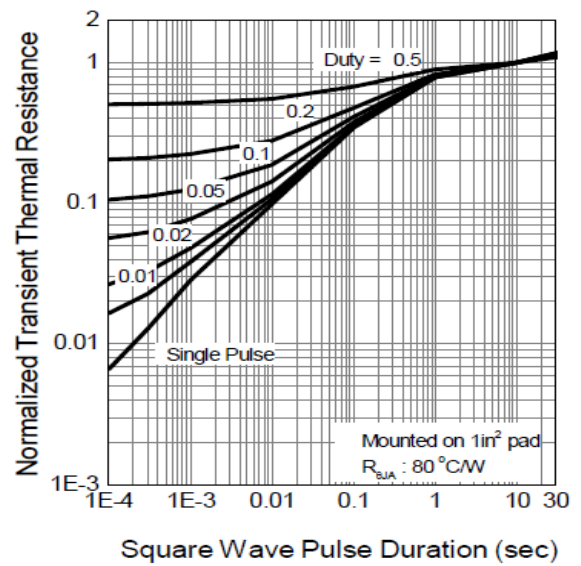
c Pulse width < 380 μs

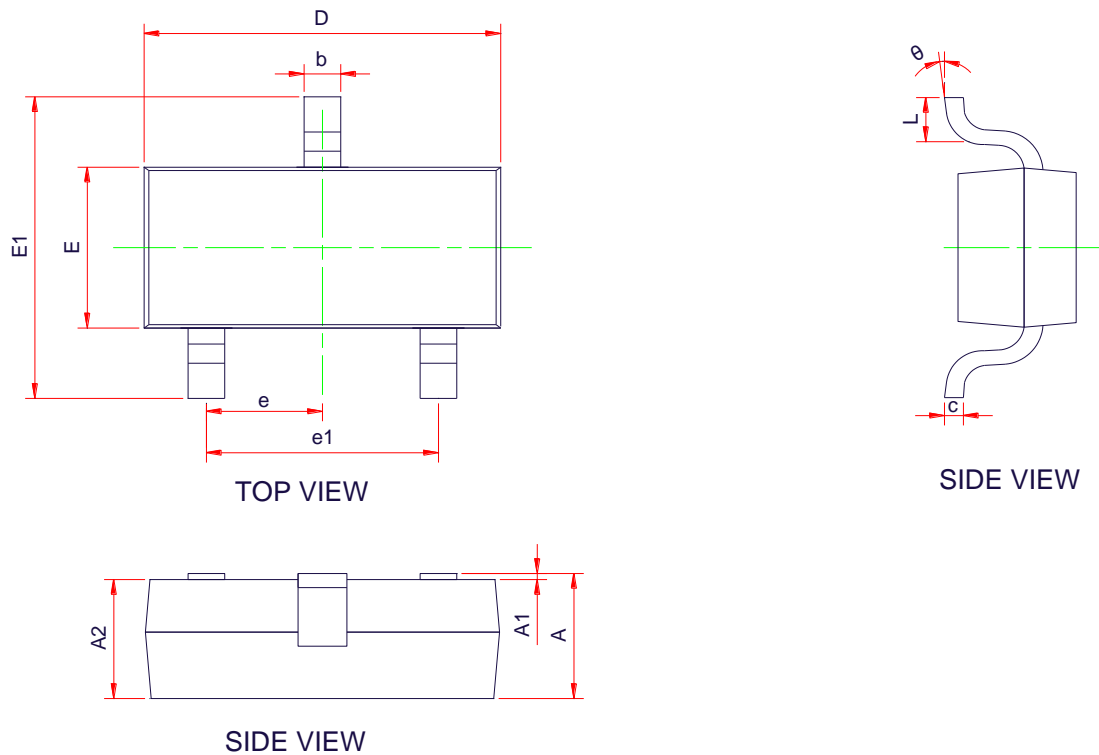
d Maximum junction temperature $T_J=150^\circ\text{C}$.

Electronics Characteristics (Ta=25°C, unless otherwise noted)

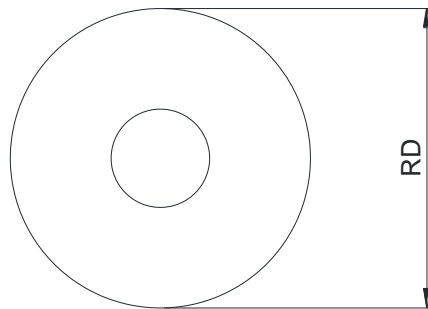
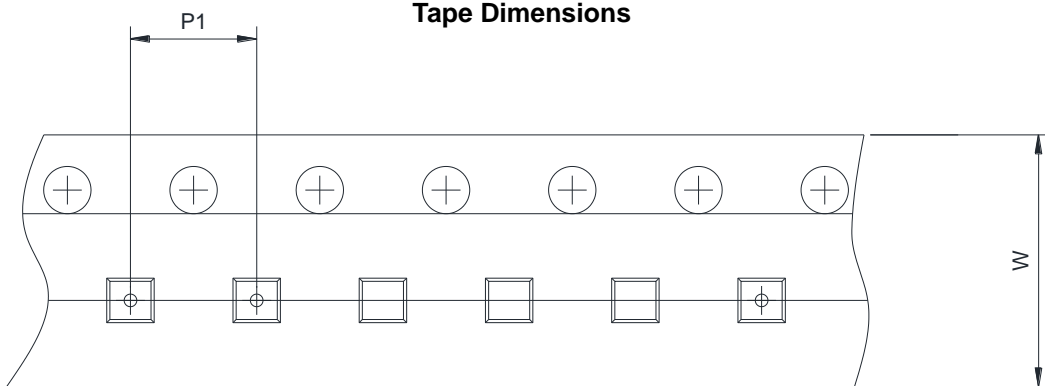
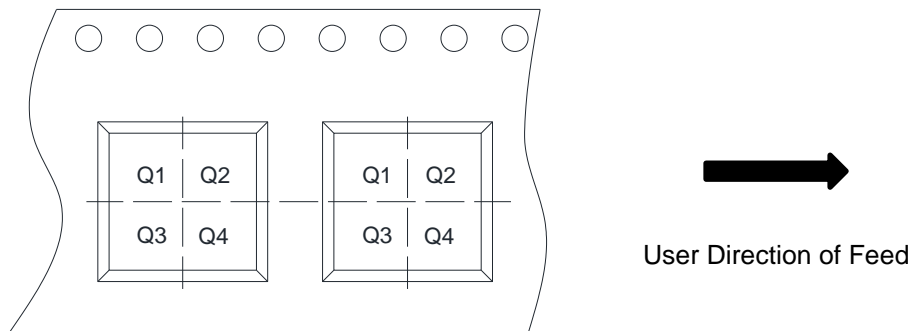
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-to-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0 V, I _D = -250uA	-20			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -16V, V _{GS} = 0V			-1	uA
Gate-to-source Leakage Current	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±12V			±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	V _{GS} = V _{DS} , I _D = -250uA	-0.4	-0.65	-1	V
Drain-to-source On-resistance ^c	R _{DS(on)}	V _{GS} = -4.5V, I _D = -5.7A		25	32	mΩ
		V _{GS} = -2.5V, I _D = -3.7A		32	40	
		V _{GS} = -1.8V, I _D = -2.0A		42	60	
Forward Transconductance	g _{FS}	V _{DS} =-10V, I _D =-1.0A		6		S
CAPACITANCES, CHARGES						
Input Capacitance	C _{ISS}	V _{GS} = 0 V, f = 1.0 MHz, V _{DD} = -10 V		1702		pF
Output Capacitance	C _{OSS}			177		
Reverse Transfer Capacitance	C _{RSS}			152		
Total Gate Charge	Q _{G(TOT)}	V _{GS} = -4.5 V, V _{DD} = -10 V, I _D = -4.9A		16.6		nC
Threshold Gate Charge	Q _{G(TH)}			0.85		
Gate-to-Source Charge	Q _{GS}			2.6		
Gate-to-Drain Charge	Q _{GD}			3.9		
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	td(on)	V _{GS} = -4.5 V, V _{DD} = -10V, I _D =-1A, R _G =6 Ω		12.6		ns
Rise Time	tr			11.4		
Turn-Off Delay Time	td(off)			122		
Fall Time	tf			44		
BODY DIODE CHARACTERISTICS						
Forward Voltage	V _{SD}	V _{GS} = 0 V, I _S = -2.0A			-1.2	V

Typical Characteristics (Ta=25°C, unless otherwise noted)

Output characteristics
Body diode forward voltage

On-Resistance vs. Drain current
On-Resistance vs. Gate-to-Source voltage

On-Resistance vs. Junction temperature
Threshold voltage vs. Temperature


Capacitance

Gate charge Characteristics

Safe operating power

**Transient thermal response
(Junction-to-Ambient)**

PACKAGE OUTLINE DIMENSIONS
SOT-23-3L


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

Tape Dimensions

Quadrant Assignments For PIN1 Orientation In Tape


RD	Reel Dimension	<input checked="" type="checkbox"/> 7inch	<input type="checkbox"/> 13inch
W	Overall width of the carrier tape	<input checked="" type="checkbox"/> 8mm	<input type="checkbox"/> 12mm <input type="checkbox"/> 16mm
P1	Pitch between successive cavity centers	<input type="checkbox"/> 2mm	<input checked="" type="checkbox"/> 4mm <input type="checkbox"/> 8mm
Pin1	Pin1 Quadrant	<input type="checkbox"/> Q1	<input type="checkbox"/> Q2 <input checked="" type="checkbox"/> Q3 <input type="checkbox"/> Q4

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[C3M0021120D](#)