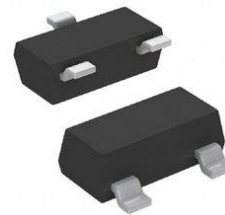


WPM6207

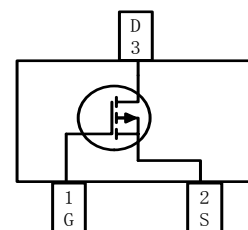
Single P-Channel, -20V, -5.7A, Power MOSFET

www.sh-willsemi.com

V_{DS} (V)	Max $R_{ds(on)}$ (m Ω)
-20	30@ $V_{GS} = -4.5V$
	40@ $V_{GS} = -2.5V$
	60@ $V_{GS} = -1.8V$



SOT-23-3



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.

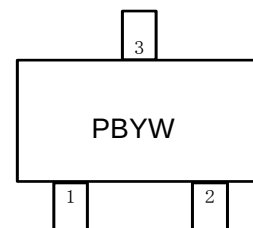
Features

- 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

Pin configuration (Top view)



PB = Specific Device Code
Y = Year
W = Week

Marking

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°C	I _D	-6.4	-5.7	A
	T _A =70°C		-5.1	-4.6	
Maximum Power Dissipation ^{a d}	T _A =25°C	P _D	1.5	1.2	W
	T _A =70°C		1	0.8	
Continuous Drain Current ^{b d}	T _A =25°C	I _D	-5.5	-4.8	A
	T _A =70°C		-4.4	-3.9	
Maximum Power Dissipation ^{b d}	T _A =25°C	P _D	1.1	0.8	W
	T _A =70°C		0.7	0.5	
Pulsed Drain Current ^c		I _{DM}	-20		A
Operating Junction Temperature		T _J	-55 to 150		°C
Lead Temperature		T _L	260		°C
Storage Temperature Range		T _{stg}	-55 to 150		°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	Steady State	$R_{\theta JC}$	40	60	

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

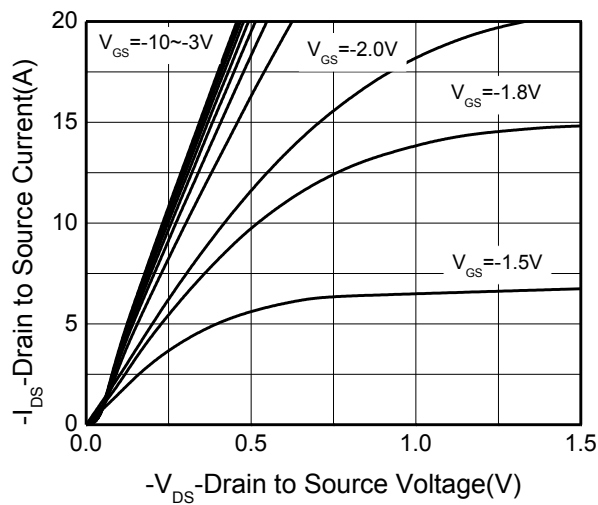
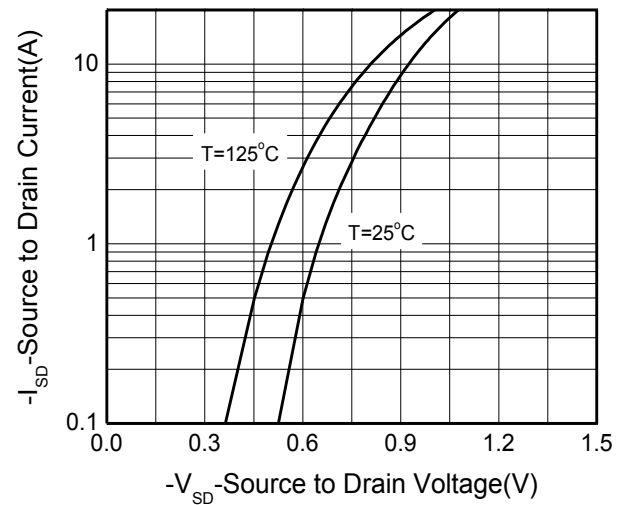
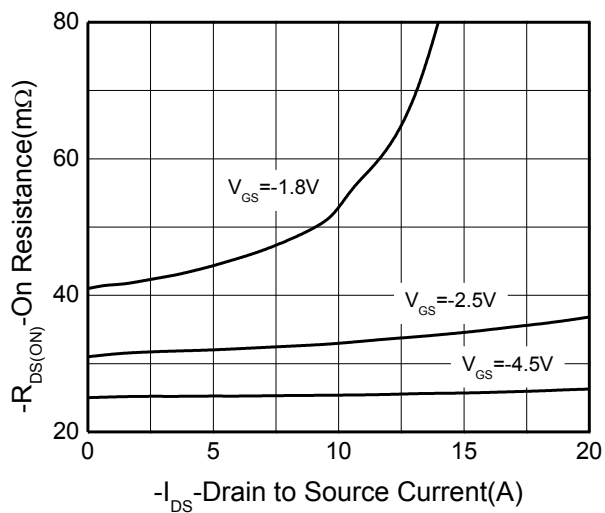
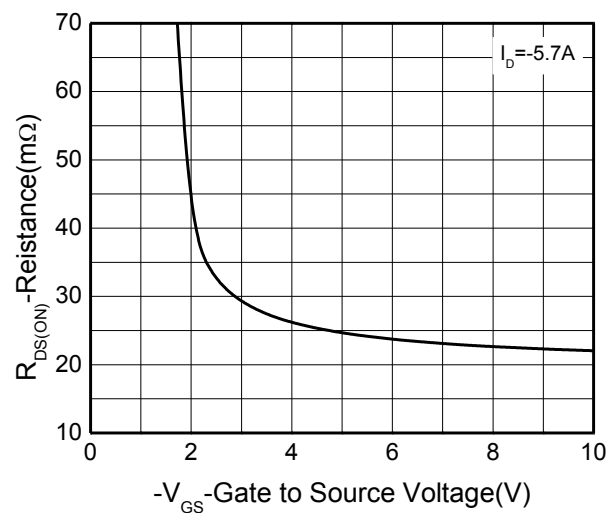
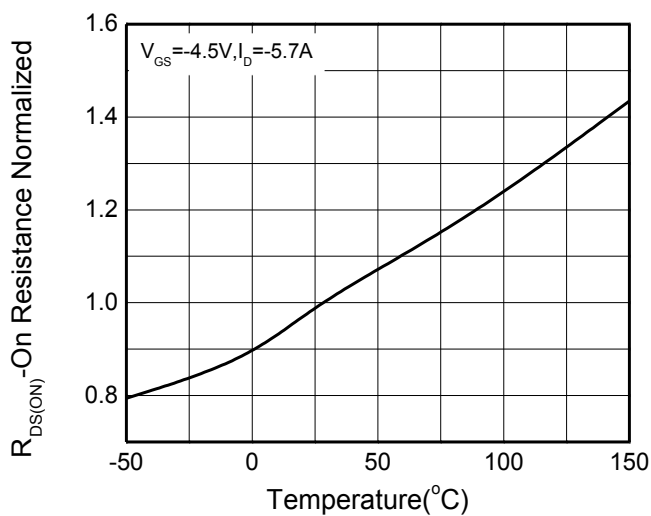
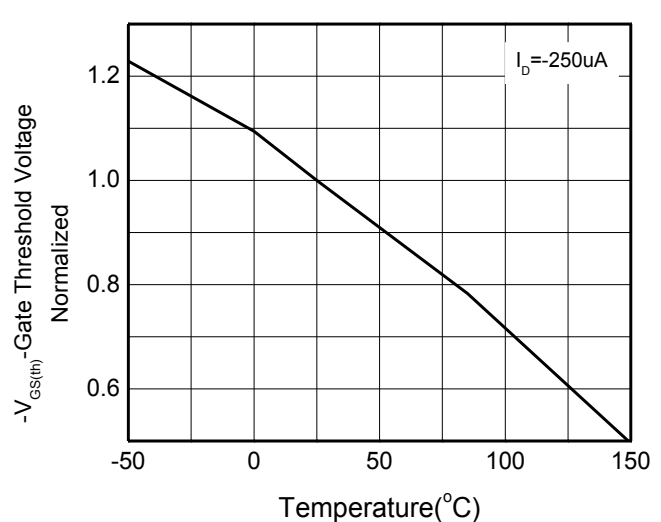
b Surface mounted on FR-4 board using minimum pad size, 1oz copper

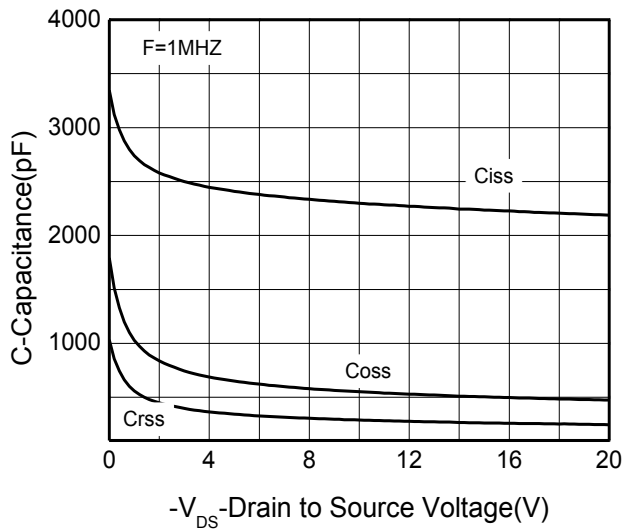
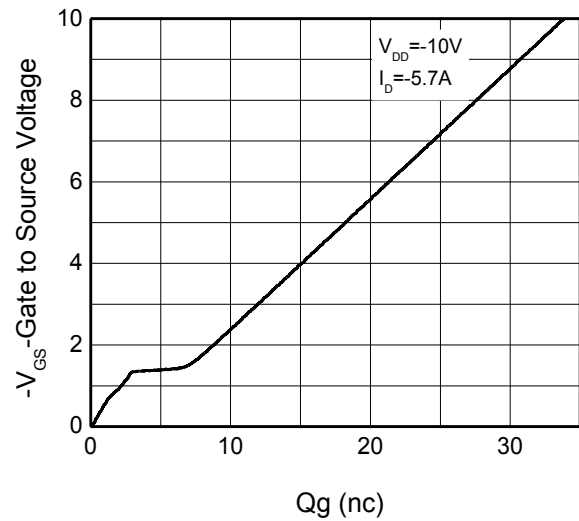
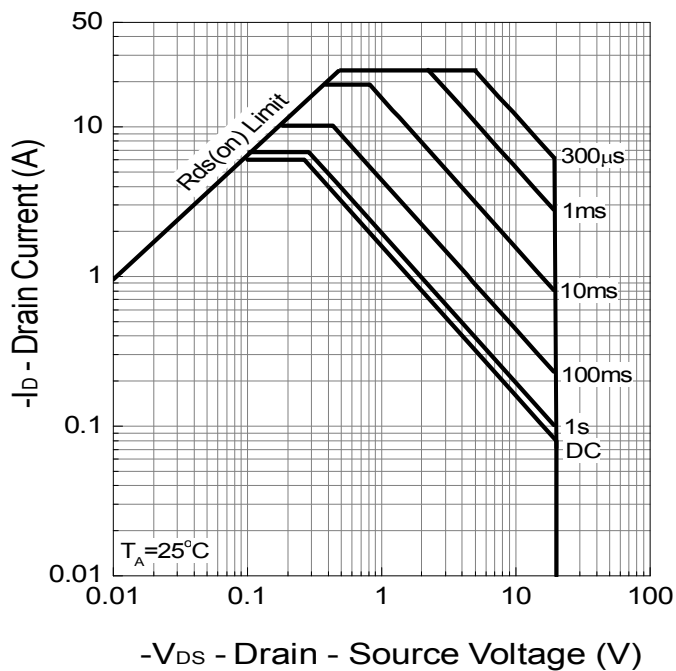
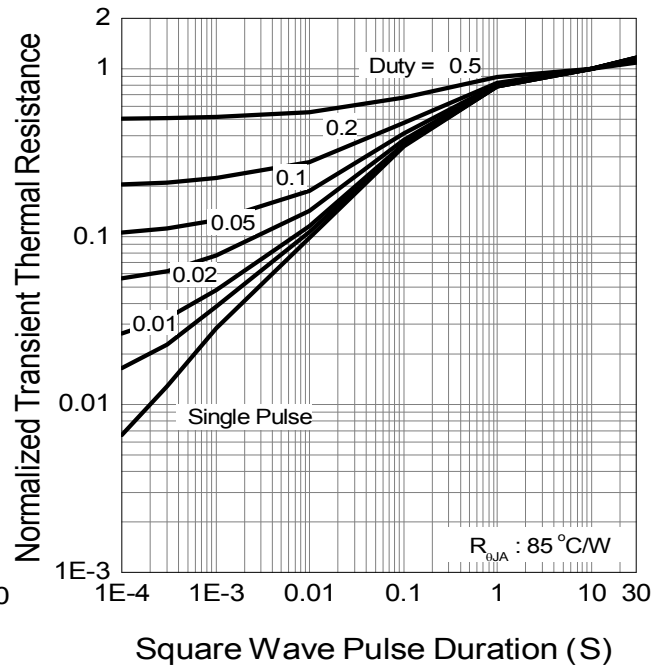
c Pulse width < 380 μs

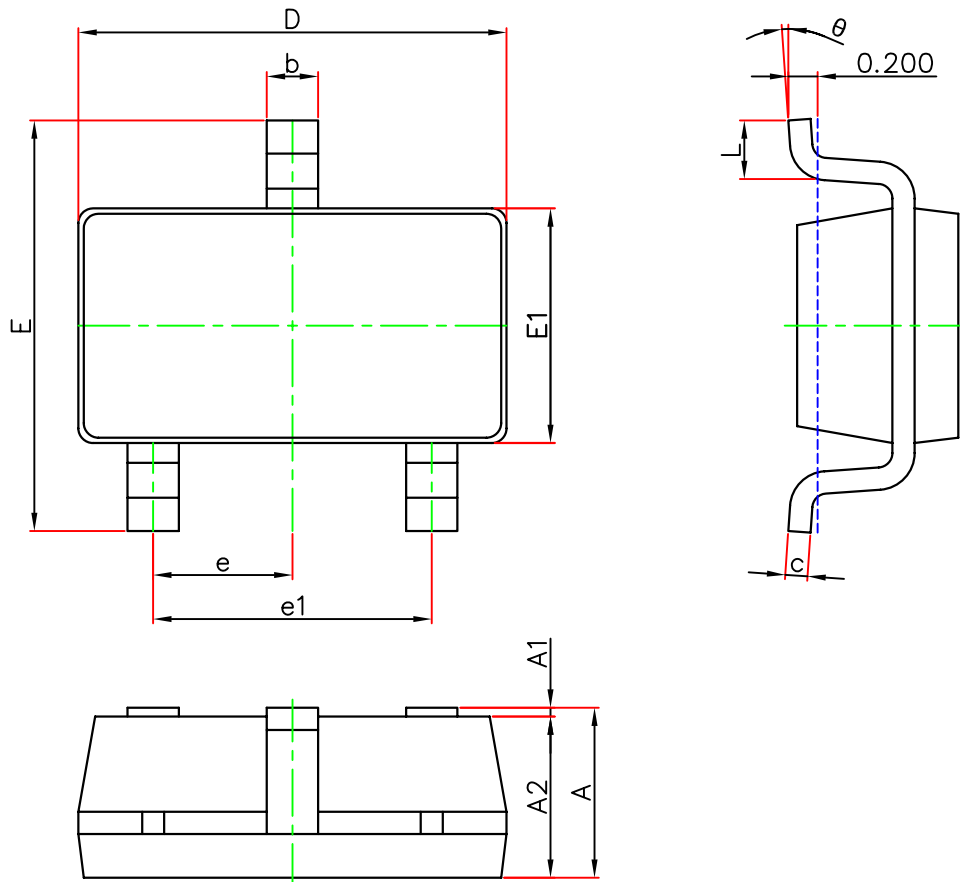
d Maximum junction temperature $T_J=150^{\circ}\text{C}$.

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	30	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		2260		pF
Output Capacitance	C _{OSS}			550		
Reverse Transfer Capacitance	C _{RSS}			270		
Total Gate Charge	Q _{G(TOT)}	V _{GS} = -4.5 V, V _{DD} = -10 V, I _D = -5.7A		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		26		ns
Rise Time	tr			18		
Turn-Off Delay Time	td(off)			122		
Fall Time	tf			71		
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-23-3


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
E1	1.500	1.700	0.059	0.067
E	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°

制 修 订 记 录					
文件版本	制修日期	修订页次	修订人	变更内容	
V1.0	2015.06.08	All	杨乐	初版	
批准		审核		编制	
日期		日期		日期	
各部门会签					
应用部	封装部	市场部	生产管理部		
市场部上传者/上传时间					
品质部确认者/确认时间					