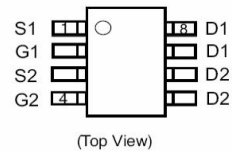


**WPMD2076**
**Dual P-Channel, -20V, -3A, Power MOSFET**
[Http://www.sh-willsemi.com](http://www.sh-willsemi.com)

V <sub>DS</sub> (V)	Typical R <sub>ds(on)</sub> (mΩ)
-20	58 @ V <sub>GS</sub> =-10V
	71 @ V <sub>GS</sub> =-4.5V
	100 @ V <sub>GS</sub> =-2.5V


**SOP-8L**

**Pin configuration (Top view)**
**Descriptions**

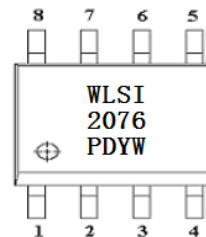
The WPMD2076 is the Dual P-Channel logic mode power field effect transistors are produced using high cell density, DMOS trench technology. This high density process is especially tailored to minimize on-state resistance. These devices are particularly suited for low voltage application, notebook computer power management and other battery powered circuits where high-side switching.

**Features**

- Trench Technology
- Supper high density cell design
- Excellent ON resistance for higher DC current
- Extremely Low Threshold Voltage
- SOP-8L package design

**Applications**

- Power Management
- DC-DC converter circuit
- Simple drive requirement
- Load Switch
- Charging



2076 = Device Code  
 PD = Special Code  
 Y =Year  
 W =Week

**Marking**
**Order information**

Device	Package	Shipping
WPMD2076-8/TR	SOP-8L	4000/Reel&Tape

**Absolute Maximum ratings**

Parameter		Symbol	10 S	Steady State	Unit
Drain-Source Voltage		$V_{DS}$	-20		V
Gate-Source Voltage		$V_{GS}$	$\pm 12$		
Continuous Drain Current <sup>a d</sup>	$T_A=25^\circ\text{C}$	$I_D$	-4.62	-3.63	A
	$T_A=70^\circ\text{C}$		-3.69	-2.90	
Maximum Power Dissipation <sup>a d</sup>	$T_A=25^\circ\text{C}$	$P_D$	1.92	1.19	W
	$T_A=70^\circ\text{C}$		1.23	0.76	
Continuous Drain Current <sup>b d</sup>	$T_A=25^\circ\text{C}$	$I_D$	-4.27	-3.47	A
	$T_A=70^\circ\text{C}$		-3.41	-2.78	
Maximum Power Dissipation <sup>b d</sup>	$T_A=25^\circ\text{C}$	$P_D$	1.64	1.08	W
	$T_A=70^\circ\text{C}$		1.05	0.69	
Pulsed Drain Current <sup>c</sup>		$I_{DM}$	-20		A
Operating Junction Temperature		$T_J$	150		$^\circ\text{C}$
Storage Temperature Range		$T_{stg}$	-55 to 150		$^\circ\text{C}$

**Thermal resistance ratings**

THERMAL RESISTANCE RATINGS					
Parameter		Symbol	Typical	Maximum	Unit
Junction-to-Ambient Thermal Resistance <sup>a</sup>	$t \leq 10 \text{ s}$	$R_{\theta JA}$	56	65	$^\circ\text{C/W}$
	Steady State		87	105	
Junction-to-Ambient Thermal Resistance <sup>b</sup>	$t \leq 10 \text{ s}$	$R_{\theta JA}$	64	76	
	Steady State		96	115	
Junction-to-Case Thermal Resistance		$R_{\theta JC}$	32	40	

a Surface mounted on FR4 Board using 1 square inch pad size, 1oz copper

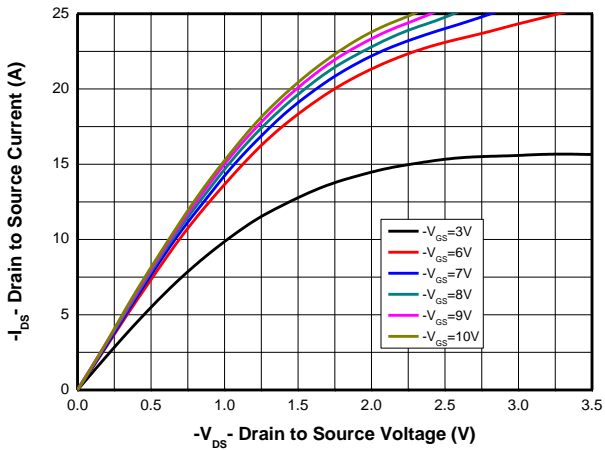
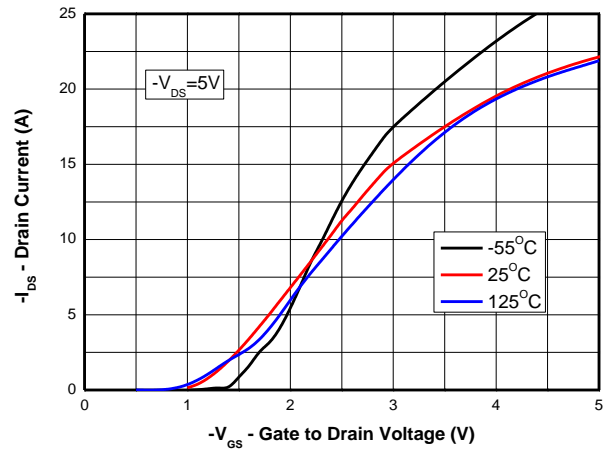
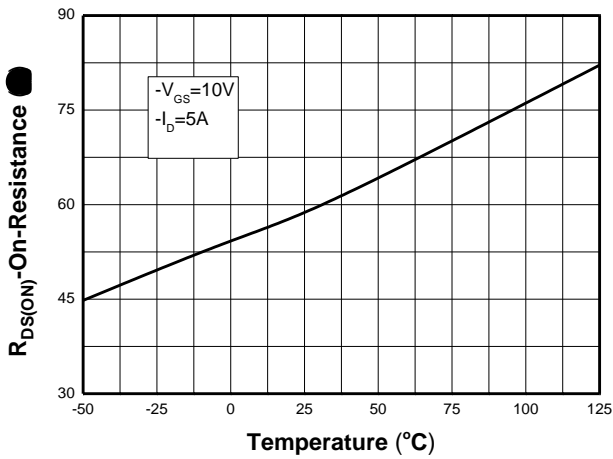
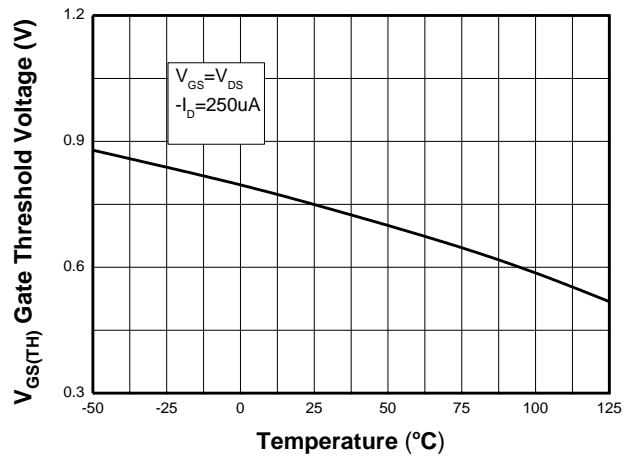
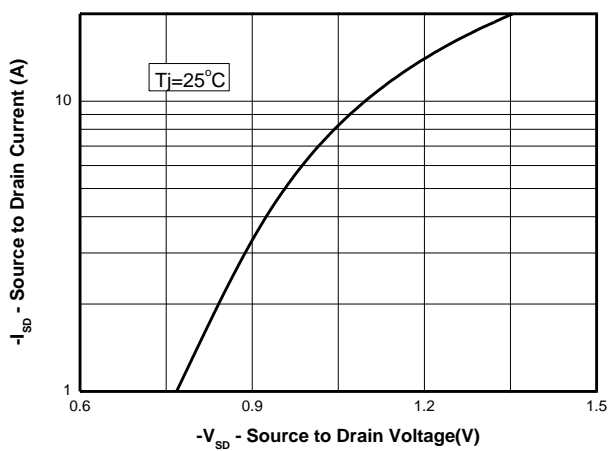
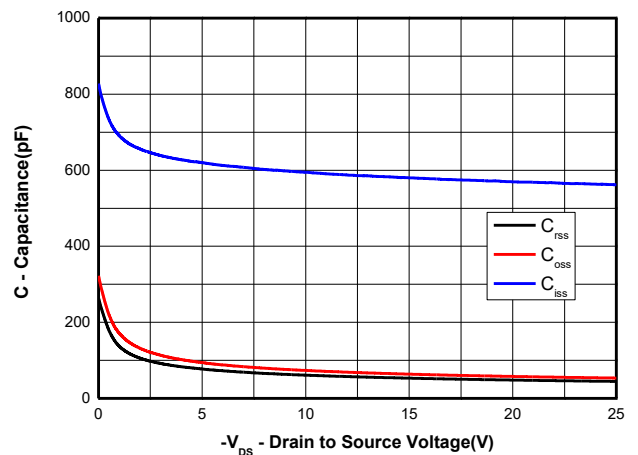
b Surface mounted on FR4 board using minimum pad size, 1oz copper

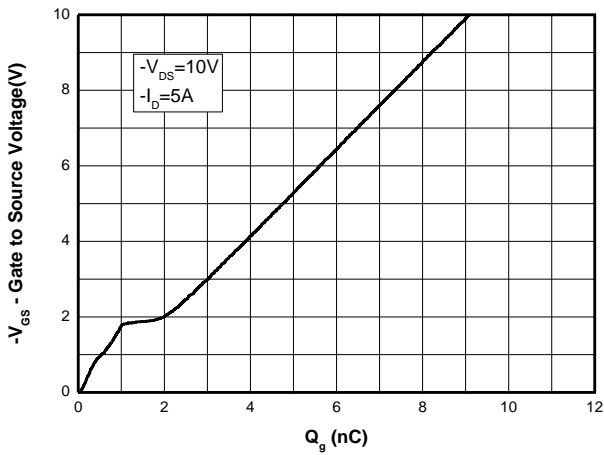
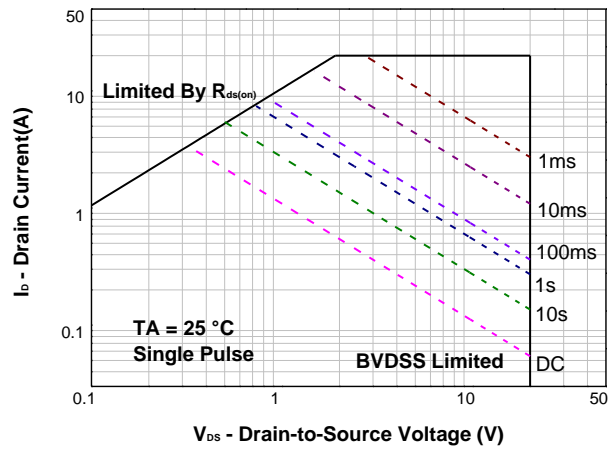
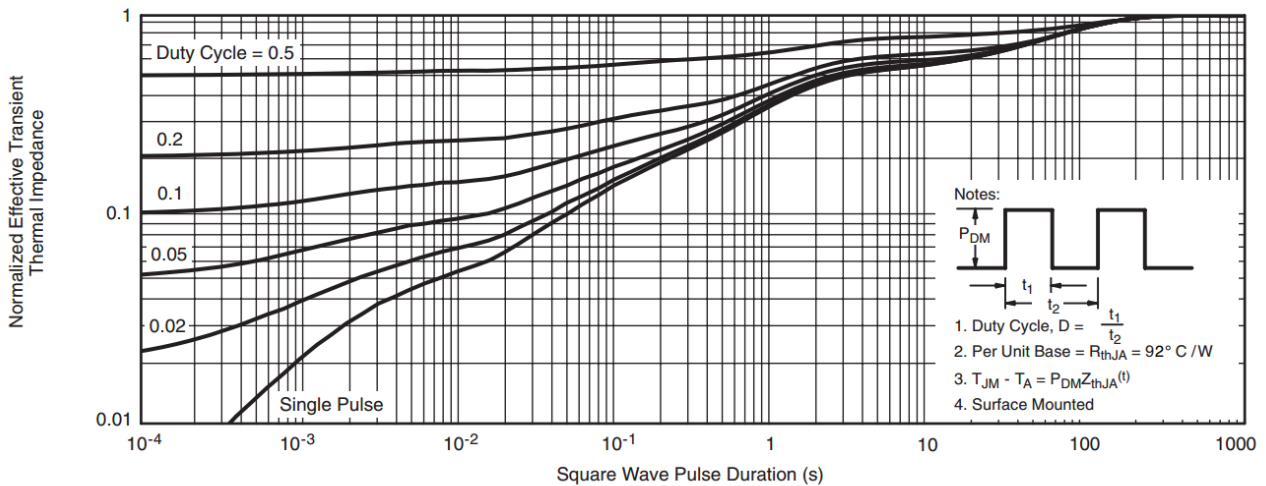
c Maximum junction temperature  $T_J=150^\circ\text{C}$ .

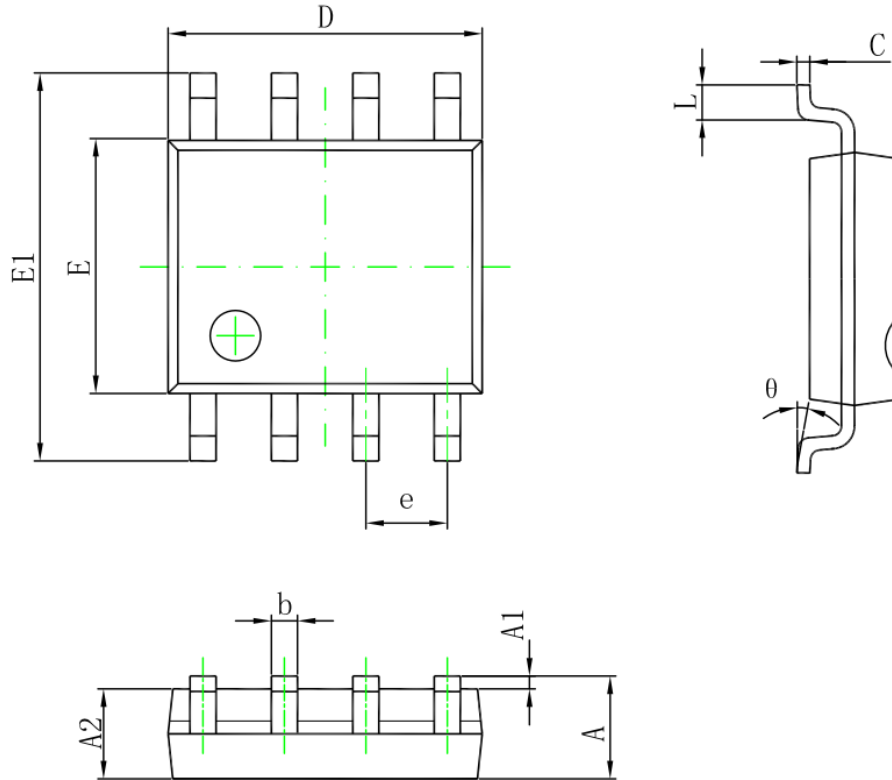
d Repetitive rating, pulse width limited by junction temperature,  $t_p=10\mu\text{s}$ , Duty Cycle=1%.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>OFF CHARACTERISTICS</b>						
Drain-to-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> = 0 V, I <sub>D</sub> = -250uA	-20			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = -20 V, V <sub>GS</sub> = 0V			-1	uA
Gate-to-source Leakage Current	I <sub>GSS</sub>	V <sub>DS</sub> = 0 V, V <sub>GS</sub> = ±12V			±100	nA
<b>ON CHARACTERISTICS</b>						
Gate Threshold Voltage	V <sub>GS(TH)</sub>	V <sub>GS</sub> = V <sub>DS</sub> , I <sub>D</sub> = -250uA	-0.4	-0.7	-1	V
Drain-to-source On-resistance <sup>e</sup>	R <sub>DS(on)</sub>	V <sub>GS</sub> = -10V, I <sub>D</sub> = -5A		58	70	mΩ
		V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -4A		71	90	
		V <sub>GS</sub> = -2.5V, I <sub>D</sub> = -2.5A		100	150	
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> = -5 V, I <sub>D</sub> = -0.45A		5		S
<b>CHARGES, CAPACITANCES AND GATE RESISTANCE</b>						
Input Capacitance	C <sub>ISS</sub>	V <sub>GS</sub> = 0 V, f = 1.0MHz, V <sub>DS</sub> = -15 V		471		pF
Output Capacitance	C <sub>OSS</sub>			51		
Reverse Transfer Capacitance	C <sub>RSS</sub>			46		
Total Gate Charge	Q <sub>G(TOT)</sub>	V <sub>GS</sub> = -10 V, V <sub>DS</sub> = -10 V, I <sub>D</sub> = -5A		7		nC
Gate-to-Source Charge	Q <sub>GS</sub>			0.6		
Gate-to-Drain Charge	Q <sub>GD</sub>			1.5		
<b>SWITCHING CHARACTERISTICS</b>						
Turn-On Delay Time	t <sub>d(ON)</sub>	V <sub>GS</sub> = -4.5V, V <sub>DS</sub> = -15V, I <sub>D</sub> = -5A, R <sub>G</sub> = 10 Ω		14.4		ns
Rise Time	t <sub>r</sub>			13.2		
Turn-Off Delay Time	t <sub>d(OFF)</sub>			48		
Fall Time	t <sub>f</sub>			39		
<b>BODY DIODE CHARACTERISTICS</b>						
Forward Voltage	V <sub>SD</sub>	V <sub>GS</sub> = 0 V, I <sub>S</sub> = -0.9A		-0.76	-1.2	V

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

**Output characteristics**

**Transfer characteristics**

**On-Resistance vs. Junction temperature**

**Threshold voltage vs. Temperature**

**Body diode forward voltage**

**Capacitance**


**Total Gate Charge**

**Safe operating power**

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

**Package outline dimensions**
**SOP-8L**


Symbol	Dimensions In Millimeters	
	Min	Max
A	1.35	1.75
A1	0.10	0.25
A2	1.35	1.55
b	0.33	0.51
c	0.17	0.25
D	4.70	5.10
E	3.80	4.00
E1	5.80	6.20
e	1.27 (BSC)	
L	0.40	1.27
θ	0 °	8 °