WPMD2076

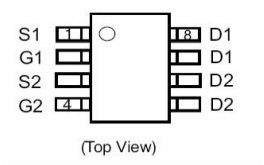
Dual P-Channel, -20V, -3A, Power MOSFET

Http://www.sh-willsemi.com

V_{DS} (V)	Typical Rds(on) (mΩ)
-20	58@ V_{GS}=-10V
	71@ V_{GS}=-4.5V
	100@ V_{GS}=-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.

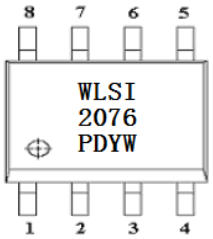
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Features

- 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}	±12		
Continuous Drain Current [a d]	T_A=25°C	I_D	-4.62	-3.63	A
	T_A=70°C		-3.69	-2.90	
Maximum Power Dissipation [a d]	T_A=25°C	P_D	1.92	1.19	W
	T_A=70°C		1.23	0.76	
Continuous Drain Current [b d]	T_A=25°C	I_D	-4.27	-3.47	A
	T_A=70°C		-3.41	-2.78	
Maximum Power Dissipation [b d]	T_A=25°C	P_D	1.64	1.08	W
	T_A=70°C		1.05	0.69	
Pulsed Drain Current [c]		I_{DM}	-20		A
Operating Junction Temperature		T_J	150		°C
Storage Temperature Range		T_{stg}	-55 to 150		°C

Thermal resistance ratings

THERMAL RESISTANCE RATINGS					
Parameter		Symbol	Typical	Maximum	Unit
Junction-to-Ambient Thermal Resistance [a]	t ≤ 10 s	$R_{\theta JA}$	56	65	°C/W
	Steady State		87	105	
Junction-to-Ambient Thermal Resistance [b]	t ≤ 10 s	$R_{\theta JA}$	64	76	
	Steady State		96	115	
Junction-to-Case Thermal Resistance	Steady State	$R_{\theta JC}$	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

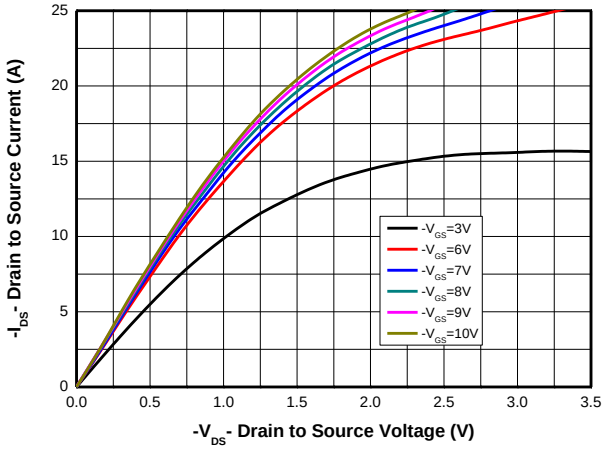
c Maximum junction temperature T_J=150° C.

d Repetitive rating, pulse width limited by junction temperature, tp=10μs, Duty Cycle=1%.

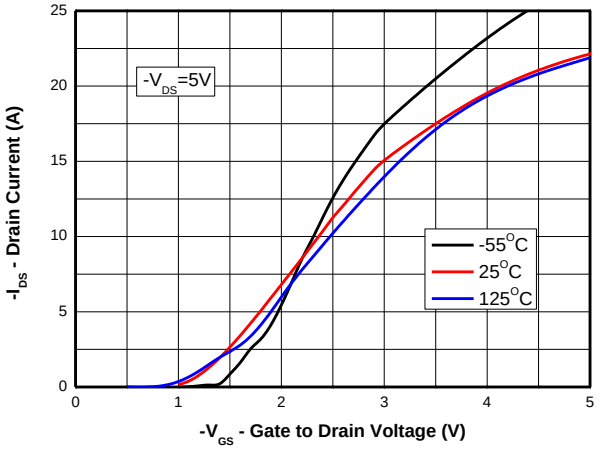
Electronics Characteristics (Ta=25°C, unless otherwise noted)

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} =-20 V, 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	-0.7	-1	V
Drain-to-source On-resistance [e]	$R_{DS(on)}$	VGS = -10V, ID = -5A		58	70	mΩ
		VGS = -4.5V, ID = -4A		71	90	
		VGS = -2.5V, ID = -2.5A		100	150	
Forward Transconductance	g_{FS}	VDS = -5 V, ID = -0.45A		5		S
CHARGES, CAPACITANCES AND GATE RESISTANCE						
Input Capacitance	C_{ISS}	V_{GS} = 0 V, f =1.0MHz, V_{DS} = -15 V		471		pF
Output Capacitance	C_{OSS}			51		
Reverse Transfer Capacitance	C_{RSS}			46		
Total Gate Charge	$Q_{G(TOT)}$	V_{GS} = -10 V, V_{DS} = -10 V, I_D = -5A		7		nC
Gate-to-Source Charge	Q_{GS}			0.6		
Gate-to-Drain Charge	Q_{GD}			1.5		
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	td(ON)	V_{GS} = -4.5V, V_{DS} = -15V, ID=-5A, R_G=10 Ω		14.4		ns
Rise Time	tr			13.2		
Turn-Off Delay Time	td(OFF)			48		
Fall Time	tf			39		
BODY DIODE CHARACTERISTICS						
Forward Voltage	V_{SD}	V_{GS} = 0 V, I_S = -0.9A		-0.76	-1.2	V

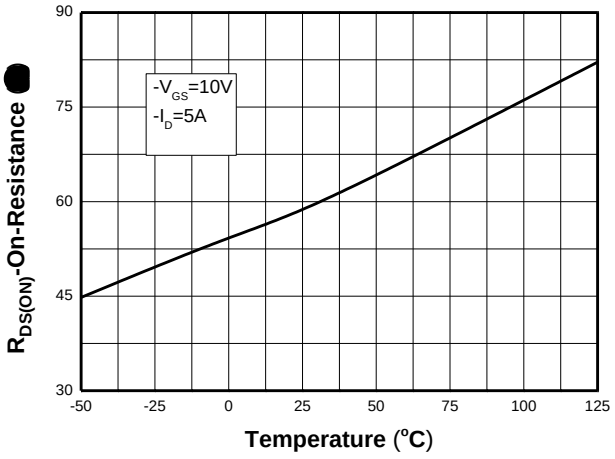
Typical Characteristics (Ta=25°C, unless otherwise noted)



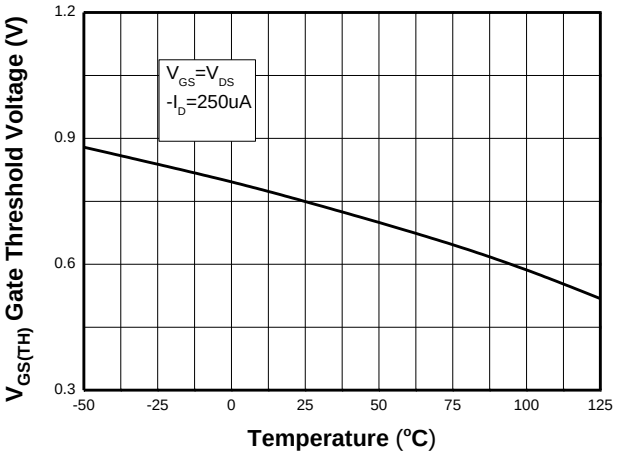
Output characteristics



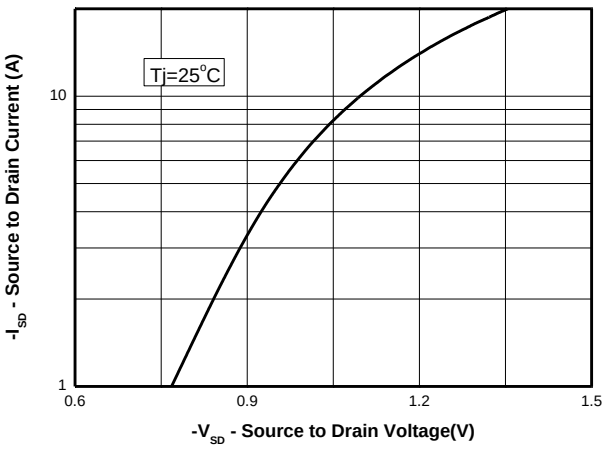
Transfer characteristics



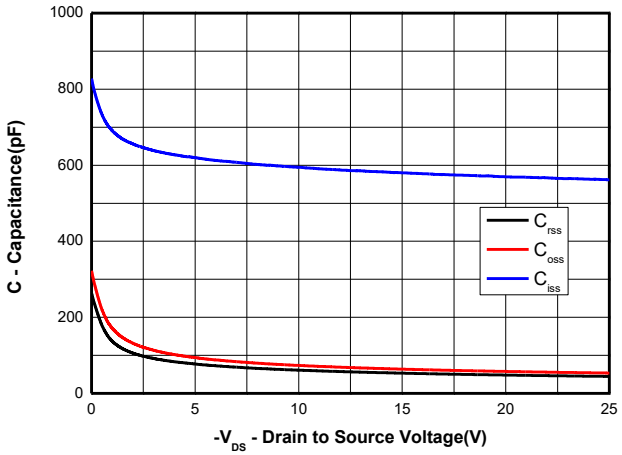
On-Resistance vs. Junction temperature



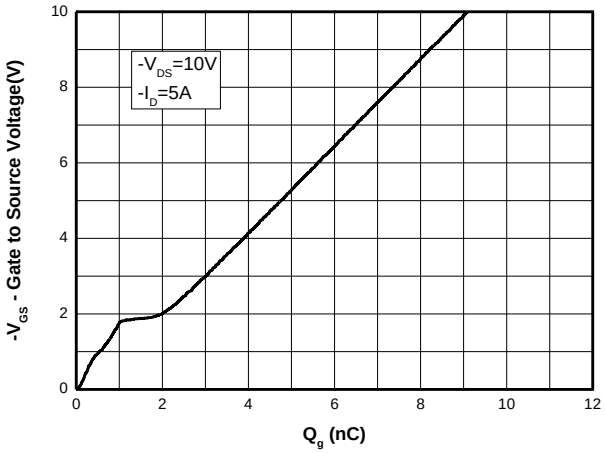
Threshold voltage vs. Temperature



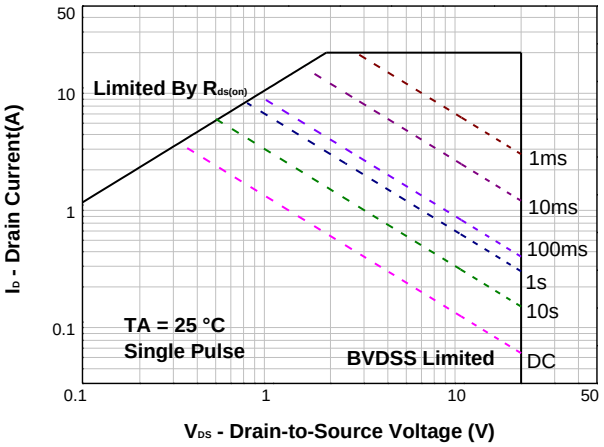
Body diode forward voltage



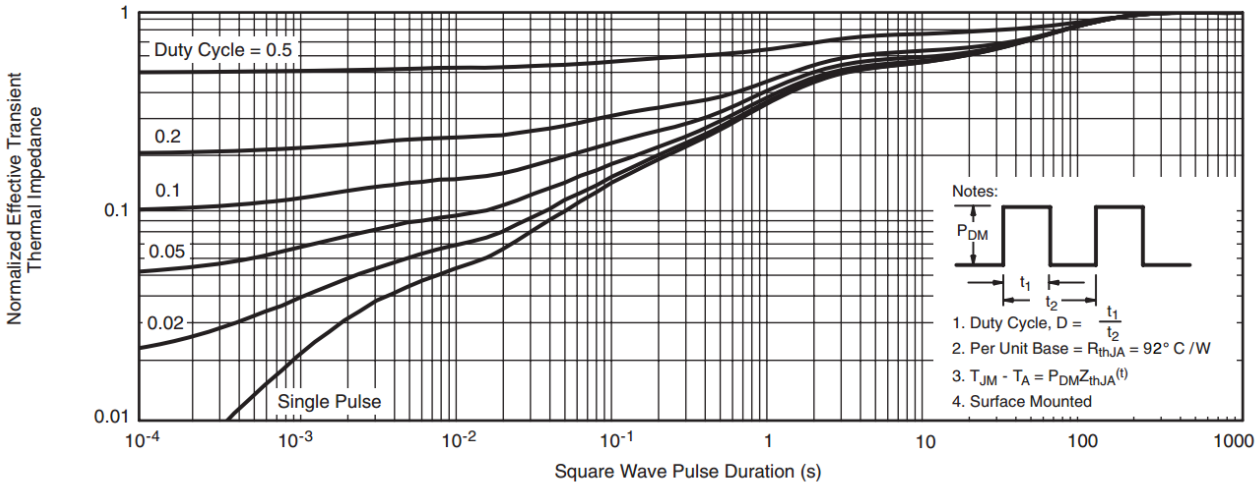
Capacitance



Total Gate Charge



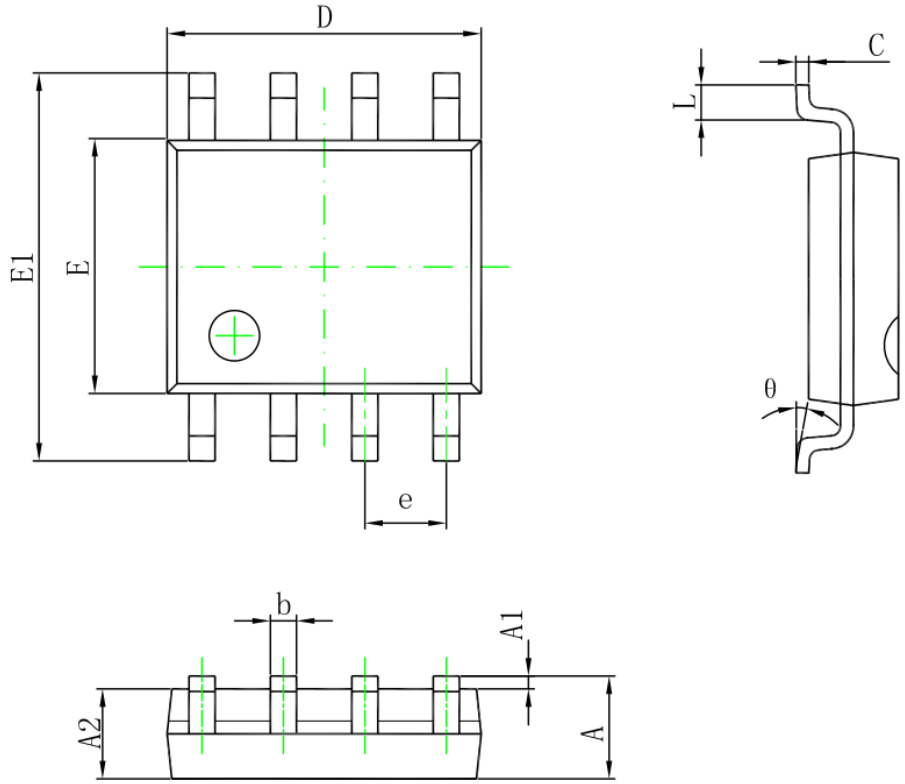
Safe operating power



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 °