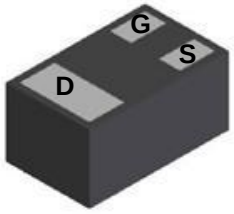
WPM2049

Single P-Channel, -20V, -0.51A, Power MOSFET

Http://www.sh-willsemi.com

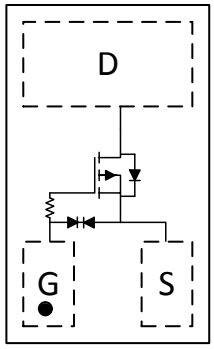
V_{DS} (V)	Typical Rds(on) (Ω)
-20	0.480@ V_{GS}=-4.5V
	0.620@ V_{GS}=-2.5V
	0.780@ V_{GS}=-1.8V



DFN1006-3L

Descriptions

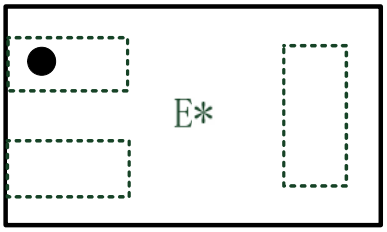
The WPM2049 is P-Channel enhancement MOS Field Effect Transistor. Uses advanced trench technology and design to provide excellent $R_{DS\ (ON)}$ with low gate charge. This device is suitable for use in DC-DC conversion, power switch and charging circuit. Standard Product WPM2049 is Pb-free and Halogen-free.



Pin configuration (Top view)

Features

- Trench Technology
- Supper high density cell design
- Excellent ON resistance for higher DC current
- Extremely Low Threshold Voltage
- Small package DFN1006-3L



E = Device Code
* = Month (A~Z)

Marking

Applications

- Driver for Relay, Solenoid, Motor, LED etc.
- DC-DC converter circuit
- Power Switch
- Load Switch
- Charging

Order information

Device	Package	Shipping
WPM2049-3/TR	DFN1006-3L	10K/Reel&Tape

Absolute Maximum ratings

Parameter		Symbol	10 S	Steady State	Unit
Drain-Source Voltage		V_{DS}	-20		V
Gate-Source Voltage		V_{GS}	±5		
Continuous Drain Current [a d]	T_A=25°C	I_D	-0.51	-0.47	A
	T_A=70°C		-0.41	-0.38	
Maximum Power Dissipation [a d]	T_A=25°C	P_D	0.31	0.27	W
	T_A=70°C		0.20	0.17	
Continuous Drain Current [b d]	T_A=25°C	I_D	-0.48	-0.45	A
	T_A=70°C		-0.38	-0.36	
Maximum Power Dissipation [b d]	T_A=25°C	P_D	0.28	0.24	W
	T_A=70°C		0.18	0.15	
Pulsed Drain Current [c]		I_{DM}	-1.2		A
Operating Junction Temperature		T_J	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 ≤ 10 s	$R_{\theta JA}$	340	395	°C/W
	Steady State		390	455	
Junction-to-Ambient Thermal Resistance [b]	t ≤ 10 s	$R_{\theta JA}$	387	441	
	Steady State		445	505	
Junction-to-Case Thermal Resistance	Steady State	$R_{\theta JC}$	240	285	

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 Pulse width<380μs, Single pulse

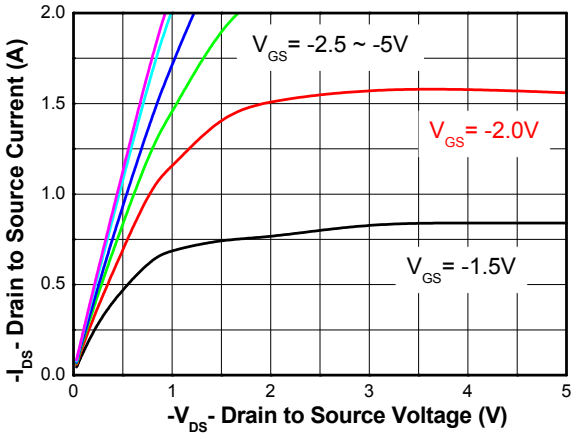
d Maximum junction temperature T_J=150° C.

e Pulse test: Pulse width <380 us duty cycle <2%.

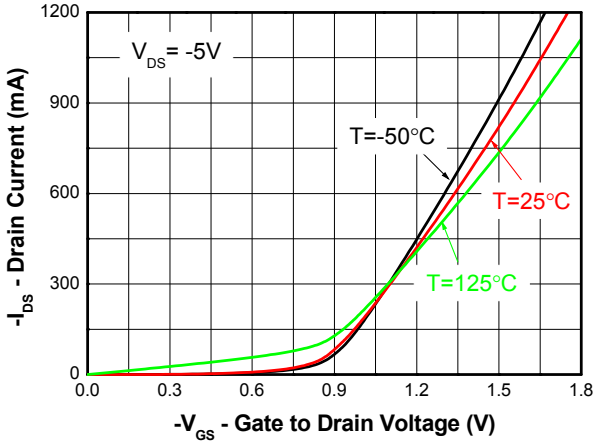
Electronics Characteristics (Ta=25°C, unless otherwise noted)

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} =-16 V, V_{GS} = 0V			-1	uA
Gate-to-source Leakage Current	I_{GSS}	V_{DS} = 0 V, V_{GS} =±5V			±5	uA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	V_{GS} = V_{DS}, I_D = -250uA	-0.45	-0.55	-0.85	V
Drain-to-source On-resistance [e]	$R_{DS(on)}$	VGS = -4.5V, ID = -0.45A			850	mΩ
		VGS = -2.5V, ID = -0.35A			1050	
		VGS = -1.8V, ID = -0.25A			1300	
Forward Transconductance	g_{FS}	VDS = -5 V, ID = -0.45A			15	S
CHARGES, CAPACITANCES AND GATE RESISTANCE						
Input Capacitance	C_{ISS}	V_{GS} = 0 V, f =100KHz, V_{DS} = -10 V		74.5		pF
Output Capacitance	C_{OSS}			10.8		
Reverse Transfer Capacitance	C_{RSS}			10.2		
Total Gate Charge	$Q_{G(TOT)}$	V_{GS} = -4.5 V, V_{DS} = -10 V, I_D = -0.45A		0.88		nC
Threshold Gate Charge	$Q_{G(TH)}$			0.07		
Gate-to-Source Charge	Q_{GS}			0.15		
Gate-to-Drain Charge	Q_{GD}			0.28		
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	td(ON)	V_{GS} = -4.5 V, V_{DS} = -10V, ID=-0.45A, R_G=6 Ω		45		ns
Rise Time	tr			140		
Turn-Off Delay Time	td(OFF)			1500		
Fall Time	tf			2100		
BODY DIODE CHARACTERISTICS						
Forward Voltage	V_{SD}	V_{GS} = 0 V, I_S = -0.15A			-1.5	V

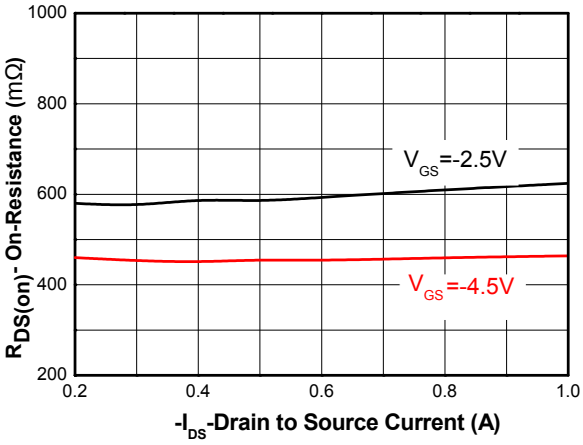
Typical Characteristics (Ta=25°C, unless otherwise noted)



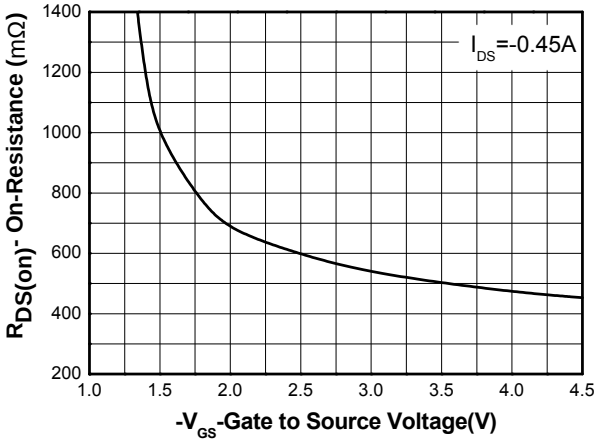
Output characteristics



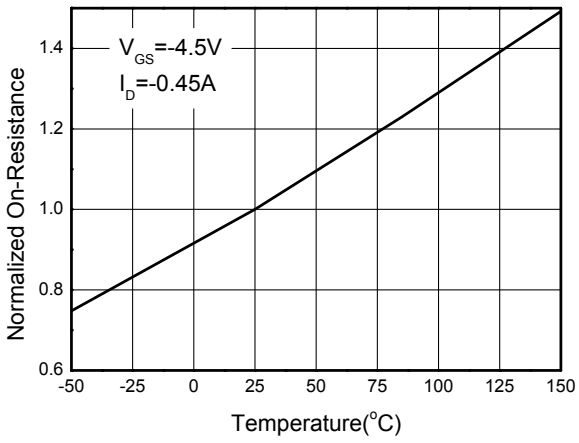
Transfer characteristics



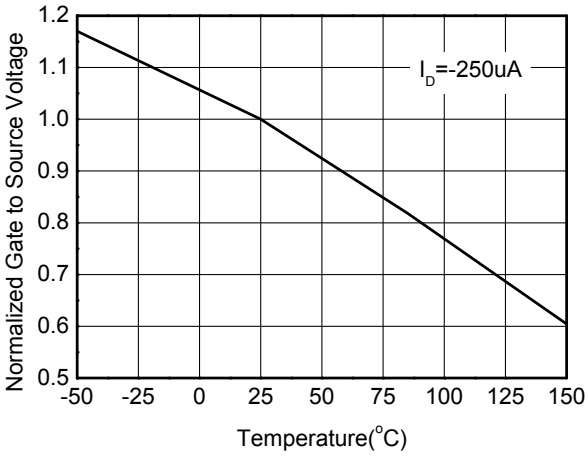
On-Resistance vs. Drain current



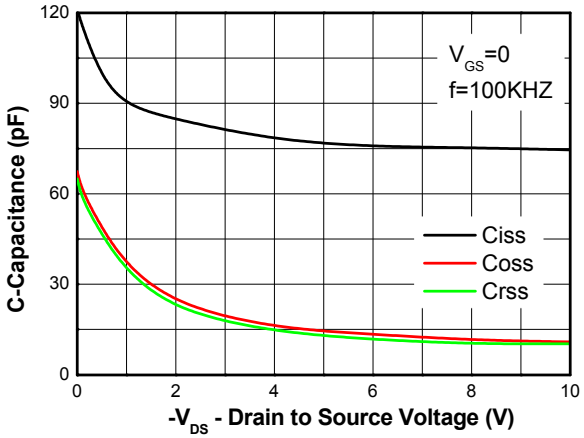
On-Resistance vs. Gate-to-Source voltage



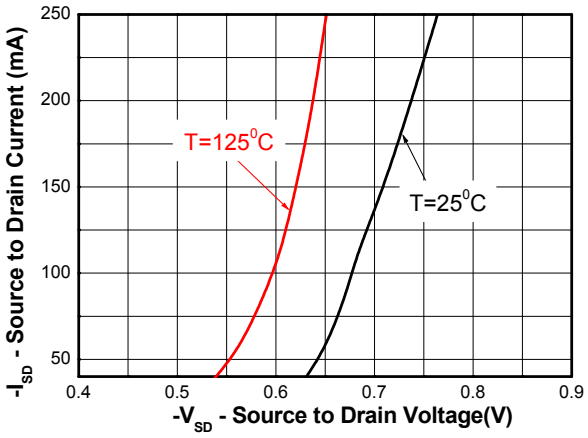
On-Resistance vs. Junction temperature



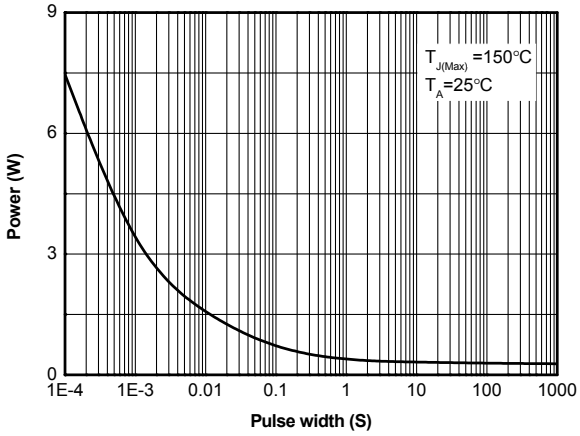
Threshold voltage vs. Temperature



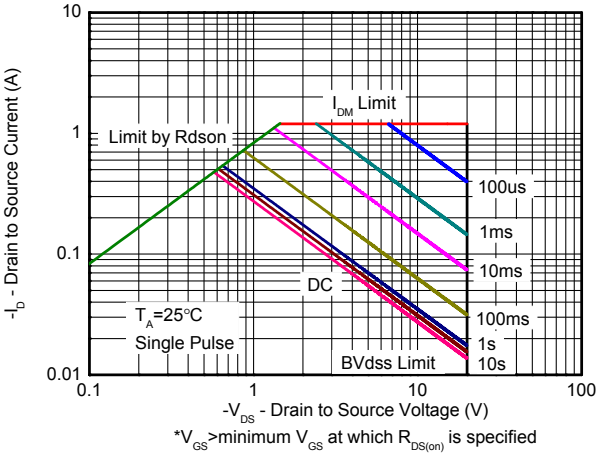
Capacitance



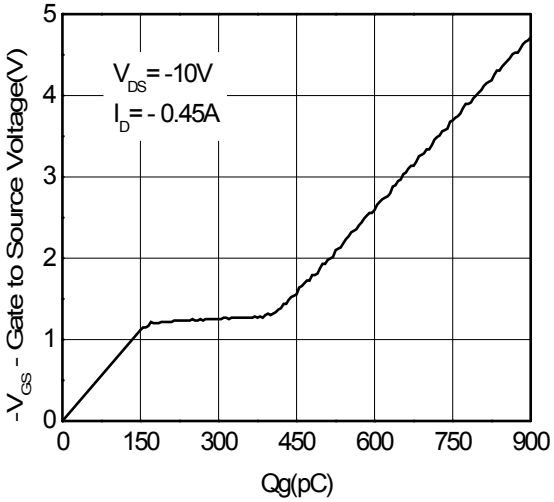
Body diode forward voltage

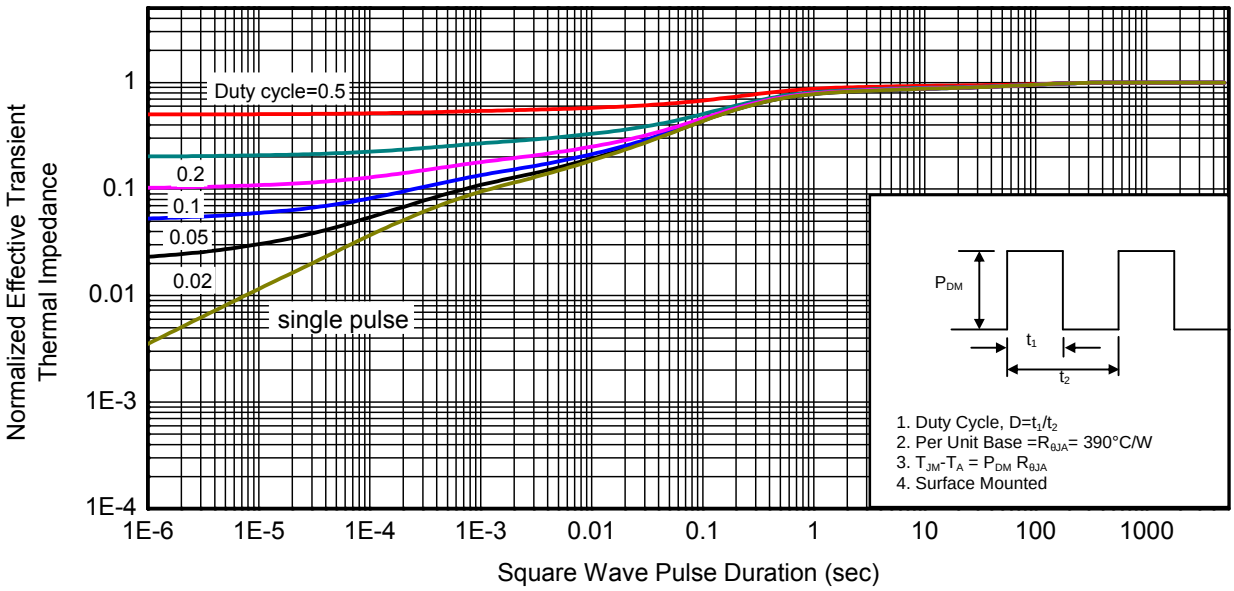


Single pulse power



Safe operating power

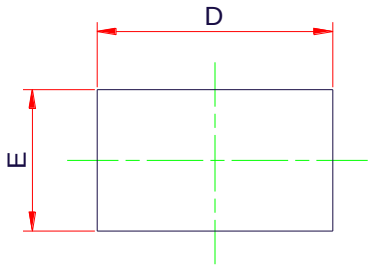




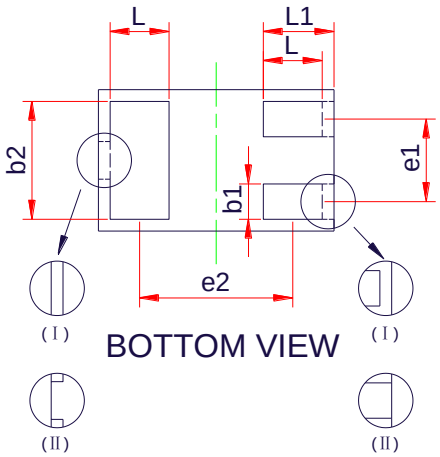
Transient thermal response (Junction-to-Ambient)

Package outline dimensions

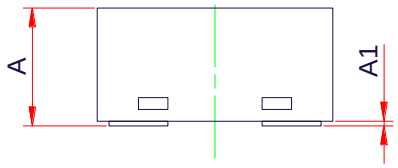
DFN1006 3L



TOP VIEW



BOTTOM VIEW

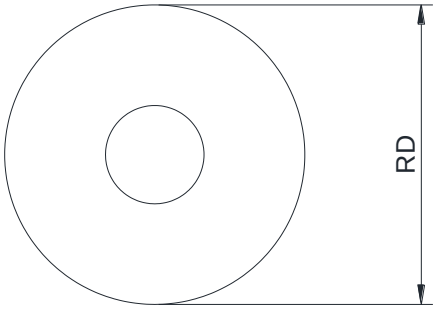


SIDE VIEW

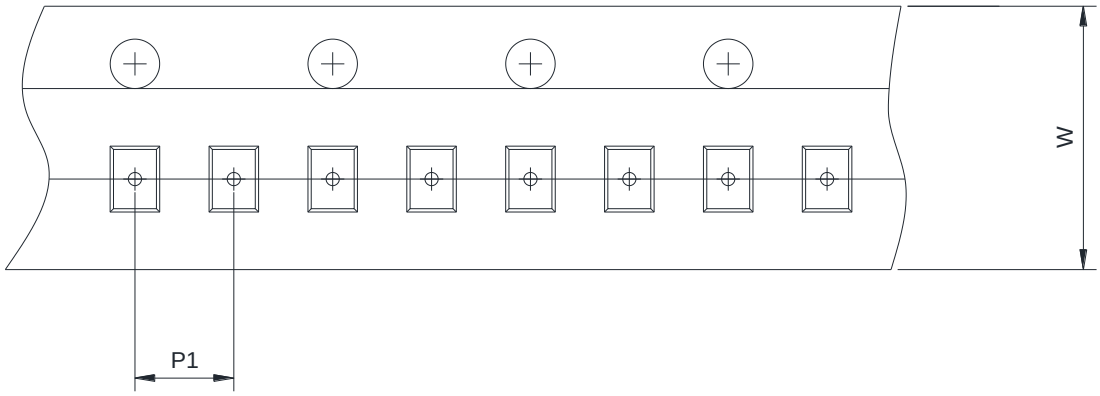
Symbol	Dimensions in Millimeters		
	Min.	Typ.	Max.
A	0.36	-	0.50
A1	0.00	-	0.05
D	0.95	1.00	1.05
E	0.55	0.60	0.65
b1	0.10	0.15	0.20
b2	0.40	0.50	0.60
L	0.20	0.25	0.30
L1	0.20	0.30	0.40
e1	0.35Ref		
e2	0.65 Ref		

TAPE AND REEL INFORMATION

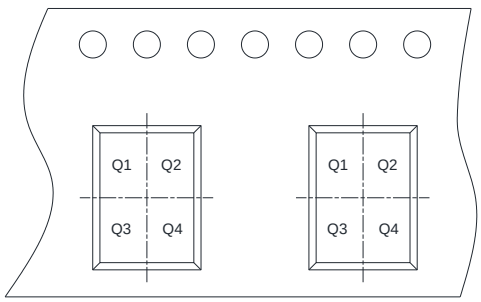
Reel Dimensions



Tape Dimensions



Quadrant Assignments For PIN1 Orientation In Tape



User Direction of Feed

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

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for MOSFET ***category:***

Click to view products by Will Semiconductor ***manufacturer:***

Other Similar products are found below :

614233C 648584F MCH3443-TL-E MCH6422-TL-E FDPF9N50NZ FW216A-TL-2W FW231A-TL-E APT5010JVR NTNS3A92PZT5G IRF100S201 JANTX2N5237 2SK2464-TL-E 2SK3818-DL-E FCA20N60_F109 FDZ595PZ STD6600NT4G FSS804-TL-E 2SJ277-DL-E 2SK1691-DL-E 2SK2545(Q,T) D2294UK 405094E 423220D MCH6646-TL-E TPCC8103,L1Q(CM 367-8430-0972-503 VN1206L 424134F 026935X 051075F SBVS138LT1G 614234A 715780A NTNS3166NZT5G 751625C 873612G IRF7380TRHR IPS70R2K0CEAKMA1 RJK60S3DPP-E0#T2 RJK60S5DPK-M0#T0 APT5010JVFR APT12031JFLL APT12040JVR DMN3404LQ-7 NTE6400 JANTX2N6796U JANTX2N6784U JANTXV2N5416U4 SQM110N05-06L-GE3 SIHF35N60E-GE3