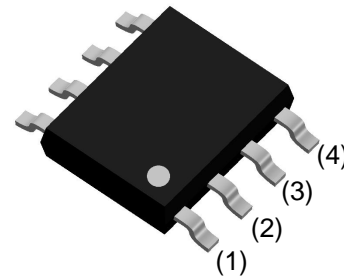
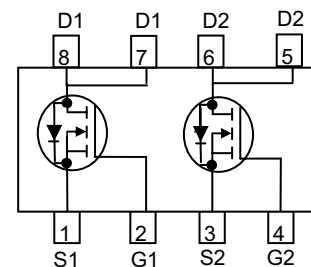
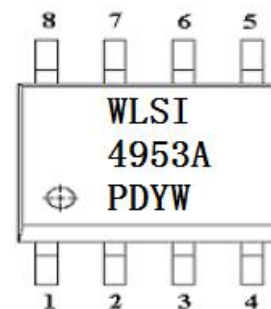


WPMD4953A
[Http://www.sh-willsemi.com](http://www.sh-willsemi.com)
Dual P-Channel, -20V, -3.4A, Power MOSFET

V_{DS} (V)	Typical $R_{DS(on)}$ (m Ω)
-20	81 @ $V_{GS}=-4.5V$
	110 @ $V_{GS}=-2.5V$


SOP-8L
Descriptions

The WPMD4953A is the Dual N-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 WPMD4953A is Pb-free and Halogen-free.


Pin configuration (Top view)


WLSI = Company
 4953A = Device Code
 PD = Special Code
 Y = Year
 W = Week(A~z)

Marking
Order information
Features

- Trench Technology
- Supper high density cell design
- Excellent ON resistance
- Extremely Low Threshold Voltage
- Small package SOP-8L

Applications

- DC/DC converters
- Power supply converters circuit
- Load/Power Switching for portable device

Device	Package	Shipping
WPMD4953A-8/TR	SOP-8L	4000/Tape&Reel

Absolute Maximum ratings

Parameter	Symbol	10 s	Steady State	Unit	
Drain-Source Voltage	V_{DS}	-20		V	
Gate-Source Voltage	V_{GS}	±8			
Continuous Drain Current ^{a d}	I_D	$T_A=25^{\circ}C$	-3.4	-2.7	A
		$T_A=70^{\circ}C$	-2.8	-2.1	
Maximum Power Dissipation ^{a d}	P_D	$T_A=25^{\circ}C$	2.0	1.2	W
		$T_A=70^{\circ}C$	1.3	0.8	
Continuous Drain Current ^{b d}	I_D	$T_A=25^{\circ}C$	-2.9	-2.4	A
		$T_A=70^{\circ}C$	-2.3	-1.9	
Maximum Power Dissipation ^{b d}	P_D	$T_A=25^{\circ}C$	1.4	0.9	W
		$T_A=70^{\circ}C$	0.9	0.6	
Pulsed Drain Current ^c	I_{DM}	-14.0		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

Single Operation					
Parameter	Symbol	Typical	Maximum	Unit	
Junction-to-Ambient Thermal Resistance ^a	$R_{\theta JA}$	$t \leq 10$ s	50	64	°C/W
		Steady State	76	106	
Junction-to-Ambient Thermal Resistance ^b	$R_{\theta JA}$	$t \leq 10$ s	69	91	
		Steady State	105	135	
Junction-to-Case Thermal Resistance	$R_{\theta JC}$	35	45		

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

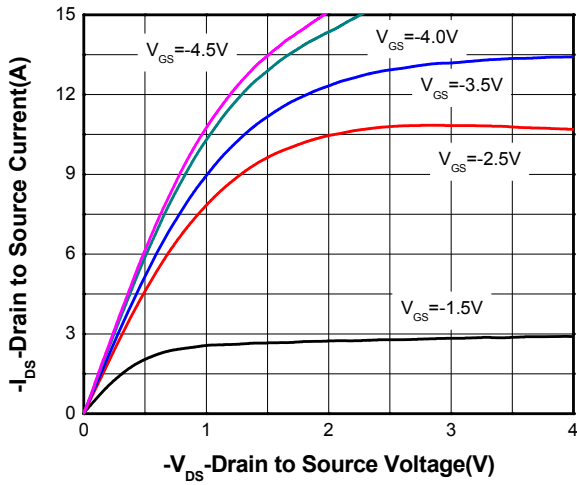
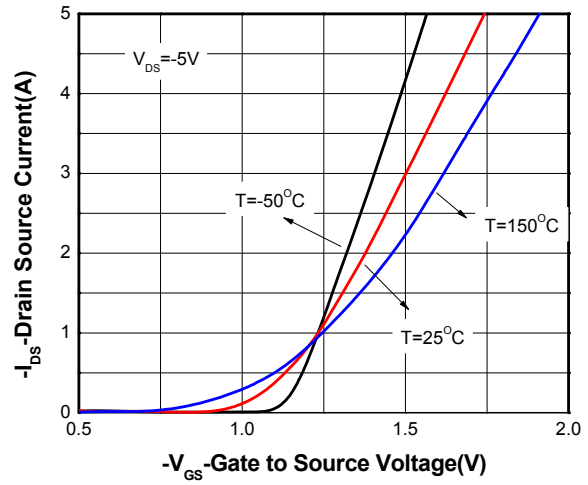
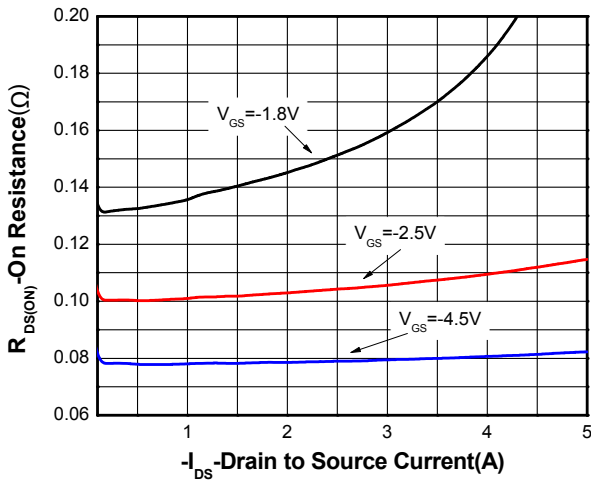
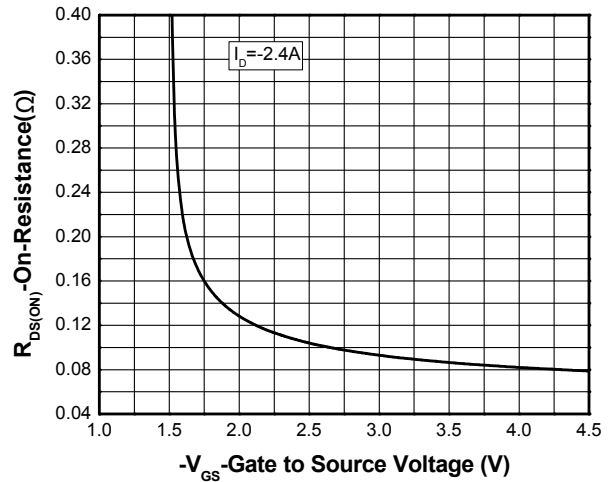
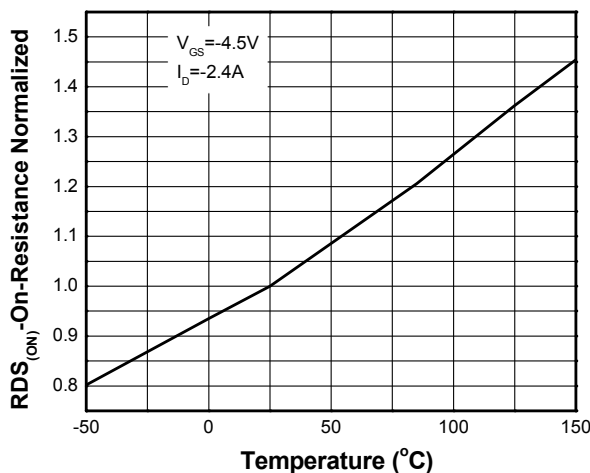
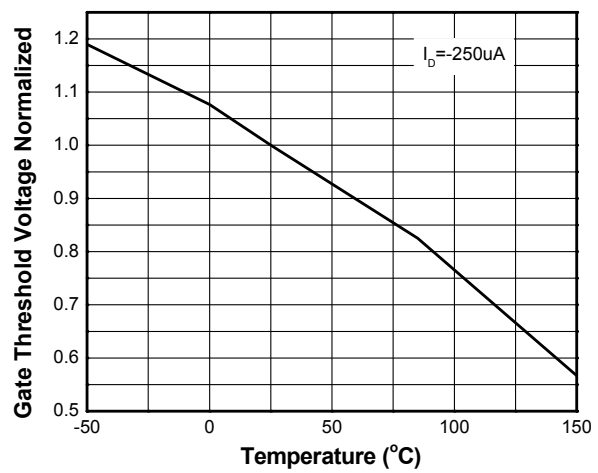
b Surface mounted on FR4 board using minimum pad size, 1oz copper

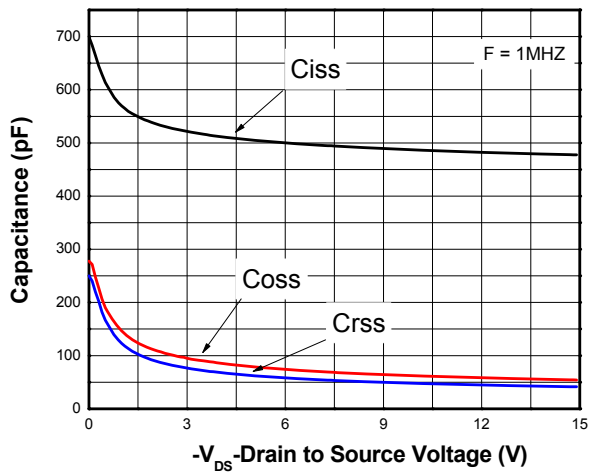
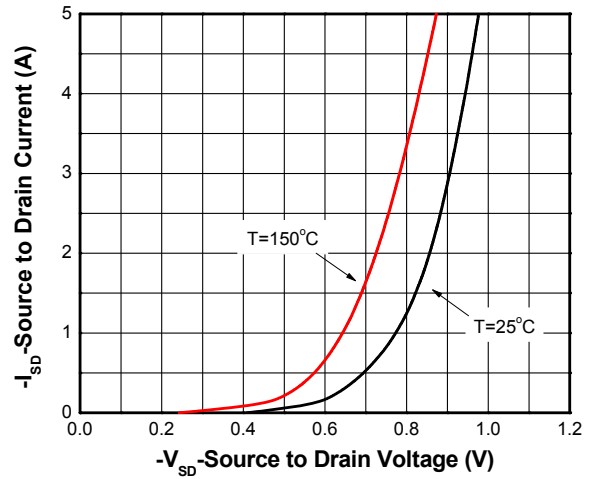
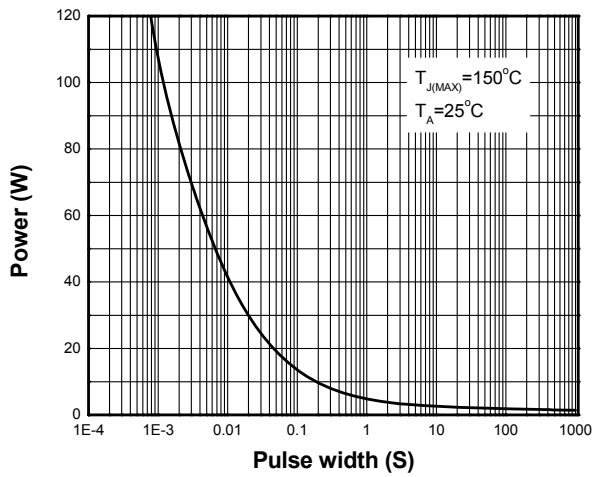
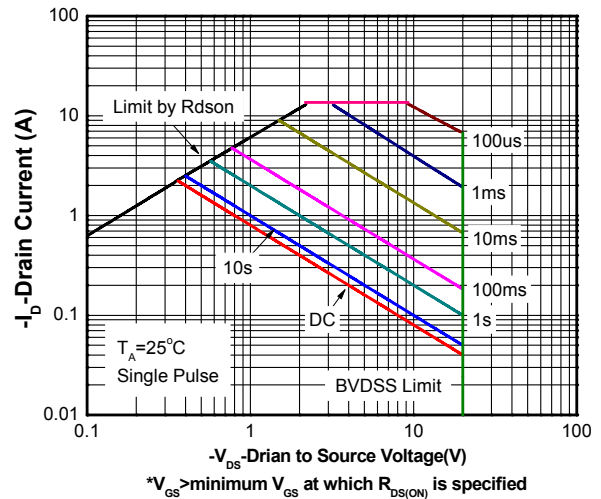
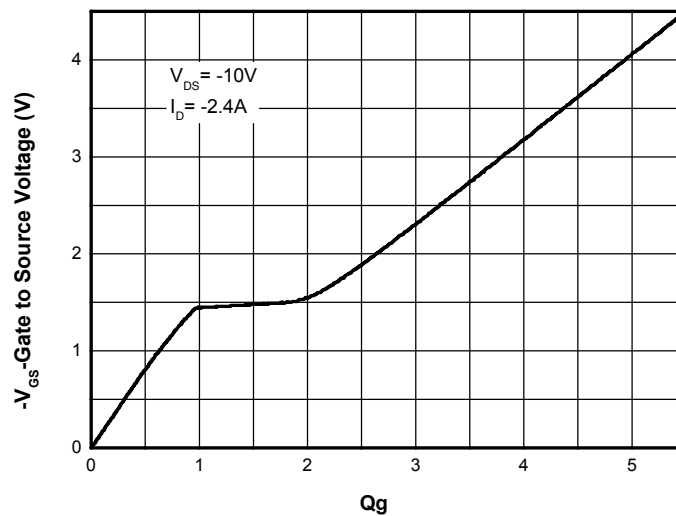
c Repetitive rating, pulse width limited by junction temperature, $t_p=10\mu s$, Duty Cycle=1%

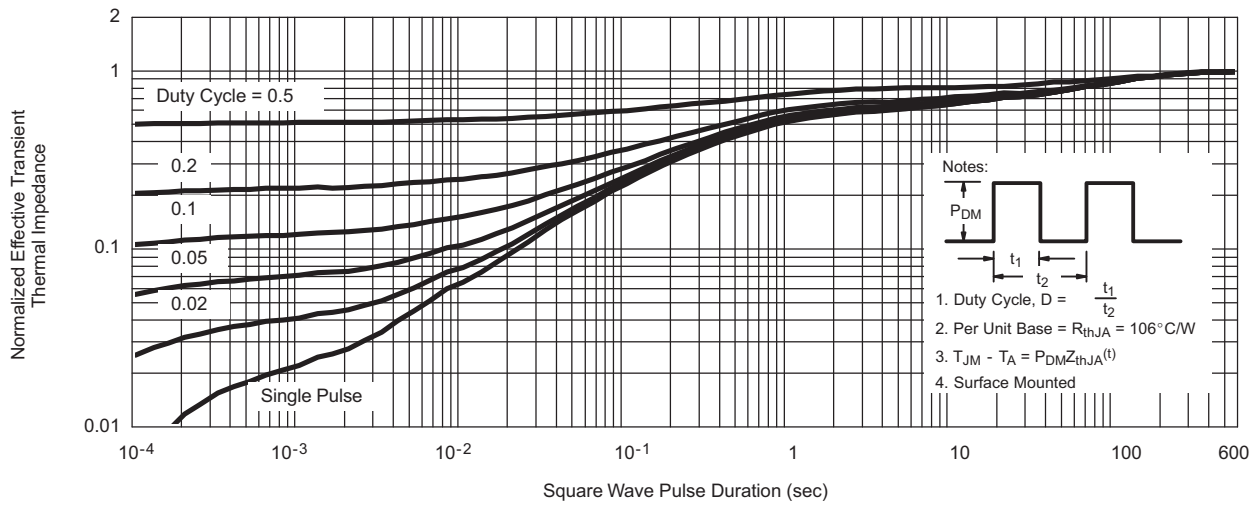
d Repetitive rating, pulse width limited by junction temperature $T_J=150^{\circ}C$.

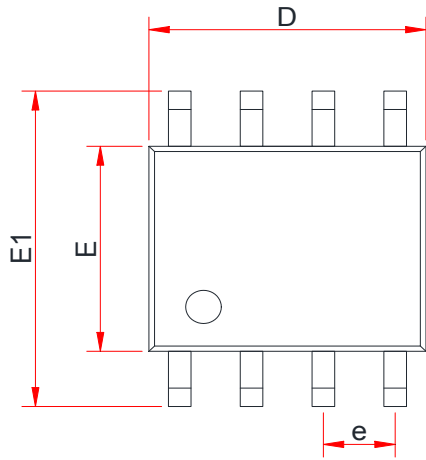
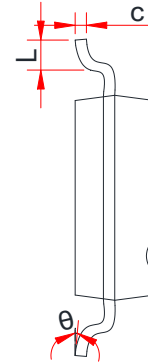
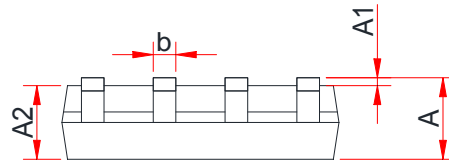
Electronics Characteristics (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-to-Source Breakdown Voltage	BV_{DSS}	$V_{GS} = 0\text{ V}, I_D = -250\mu\text{A}$	-20			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -16\text{ V}, V_{GS} = 0\text{ V}$			-1	μA
Gate-to-source Leakage Current	I_{GSS}	$V_{DS} = 0\text{ V}, V_{GS} = \pm 8\text{ V}$			± 100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{GS} = V_{DS}, I_D = -250\mu\text{A}$	-0.4	-0.65	-1	V
Drain-to-source On-resistance	$R_{DS(on)}$	$V_{GS} = -4.5\text{ V}, I_D = -2.4\text{ A}$		81	110	m Ω
		$V_{GS} = -2.5\text{ V}, I_D = -2.0\text{ A}$		103	150	
CHARGES, CAPACITANCES AND GATE RESISTANCE						
Input Capacitance	C_{ISS}	$V_{GS} = 0\text{ V}, f = 1.0\text{ MHz}, V_{DS} = -10\text{ V}$		486		pF
Output Capacitance	C_{OSS}			62		
Reverse Transfer Capacitance	C_{RSS}			48		
Total Gate Charge	$Q_{G(TOT)}$	$V_{GS} = -4.5\text{ V}, V_{DS} = -10\text{ V}, I_D = -2.4\text{ A}$		5.8		nC
Threshold Gate Charge	$Q_{G(TH)}$			0.5		
Gate-to-Source Charge	Q_{GS}			0.7		
Gate-to-Drain Charge	Q_{GD}			1.6		
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	$t_d(ON)$	$V_{GS} = -4.5\text{ V}, V_{DS} = -6\text{ V}, I_D = -1\text{ A}, R_G = 6\Omega$		9.8		ns
Rise Time	t_r			4.4		
Turn-Off Delay Time	$t_d(OFF)$			35		
Fall Time	t_f			7.4		
BODY DIODE CHARACTERISTICS						
Forward Voltage	V_{SD}	$V_{GS} = 0\text{ V}, I_S = -2.4\text{ A}$		-0.8	-1.5	V

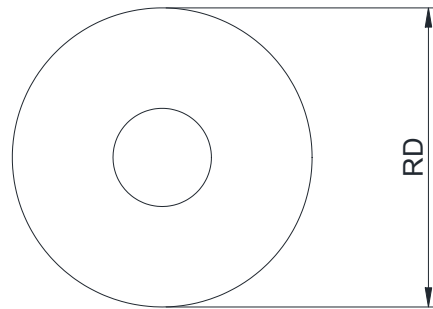
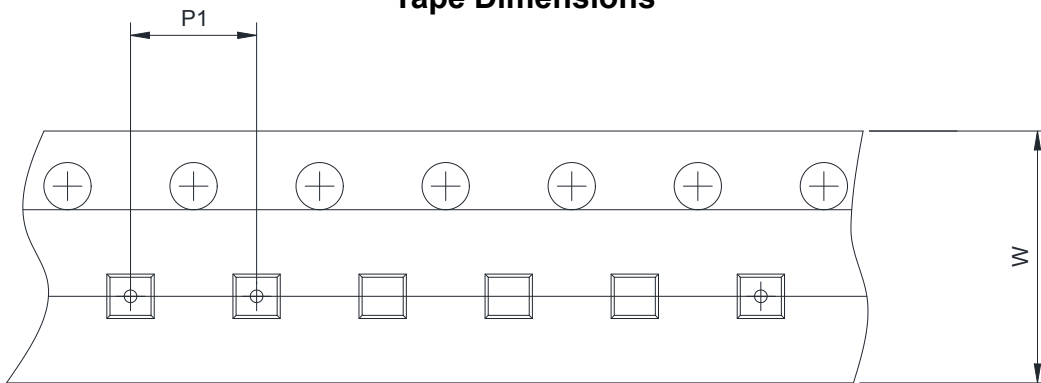
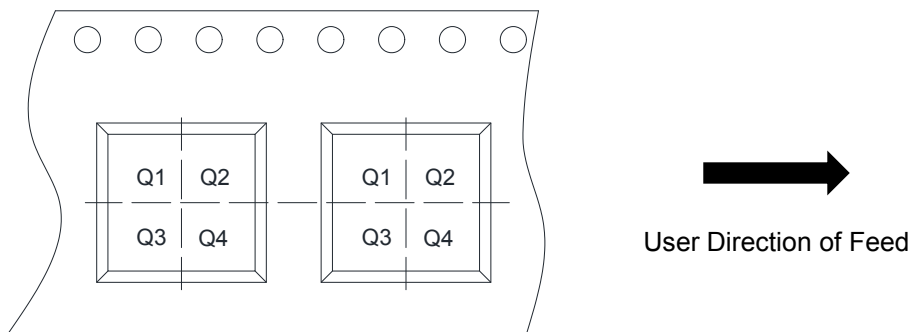
Typical Characteristics (Ta=25°C, unless otherwise noted)

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

Gate Charge Characteristics

Transient thermal response (Junction-to-Ambient)


Package outline dimensions
SOP-8L

TOP VIEW

SIDE VIEW

SIDE VIEW

Symbol	Dimensions In Millimeters (mm)		
	Min.	Typ.	Max.
A	1.35	1.55	1.75
A1	0.05	0.15	0.25
A2	1.25	1.40	1.65
b	0.33	-	0.51
c	0.15	-	0.26
D	4.70	4.90	5.10
E	3.70	3.90	4.10
E1	5.80	6.00	6.20
e	1.27BSC		
L	0.40	-	1.27
θ	0°	-	8°

TAPE AND REEL INFORMATION
Reel Dimensions

Tape Dimensions

Quadrant Assignments For PIN1 Orientation In Tape


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