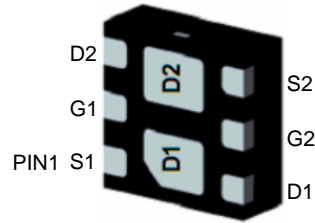
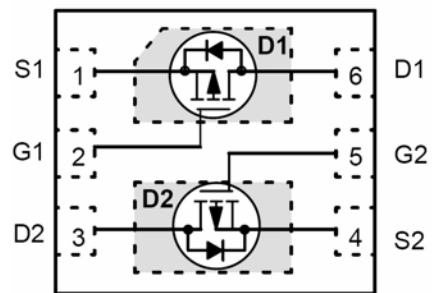


WPMD2084
Dual P-Channel, -20V, -3.3A, Power MOSFET
[Http://www.sh-willsemi.com](http://www.sh-willsemi.com)

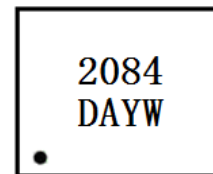
V_{DS} (V)	Typical $R_{DS(on)}$ (m Ω)
-20	80 @ $V_{GS}=-4.5V$
	105 @ $V_{GS}=-2.5V$


DFN2X2-6L
Descriptions

The WPMD2084 is Dual 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 WPMD2084 is Pb-free.


Pin configuration (Top view)
Features

- Trench Technology
- Supper high density cell design
- Excellent ON resistance
- Extremely Low Threshold Voltage
- Small package DFN2X2-6L



2084 = Device Code
 DA = Special Code
 Y = Year
 W = Week(A~z)

Marking
Applications

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

Order information

Device	Package	Shipping
WPMD2084-6/TR	DFN2X2-6L	3000/Tape&Reel

Absolute Maximum ratings

Parameter	Symbol	10 s	Steady State	Unit	
Drain-Source Voltage	V_{DS}	-20		V	
Gate-Source Voltage	V_{GS}	± 10			
Continuous Drain Current ^{a d}	I_D	$T_A=25^\circ\text{C}$	-3.3	-2.9	A
		$T_A=70^\circ\text{C}$	-2.6	-2.3	
Maximum Power Dissipation ^{a d}	P_D	$T_A=25^\circ\text{C}$	2.0	1.5	W
		$T_A=70^\circ\text{C}$	1.3	1.0	
Continuous Drain Current ^{b d}	I_D	$T_A=25^\circ\text{C}$	-2.2	-2.0	A
		$T_A=70^\circ\text{C}$	-1.7	-1.6	
Maximum Power Dissipation ^{b d}	P_D	$T_A=25^\circ\text{C}$	0.8	0.7	W
		$T_A=70^\circ\text{C}$	0.5	0.4	
Pulsed Drain Current ^c	I_{DM}	-18		A	
Operating Junction Temperature	T_J	-55 to 150		$^\circ\text{C}$	
Lead Temperature	T_L	260		$^\circ\text{C}$	
Storage Temperature Range	T_{stg}	-55 to 150		$^\circ\text{C}$	

Thermal resistance ratings

Single Operation					
Parameter		Symbol	Typical	Maximum	Unit
Junction-to-Ambient Thermal Resistance ^a	$t \leq 10 \text{ s}$	$R_{\theta JA}$	50	62	$^\circ\text{C/W}$
	Steady State		65	82	
Junction-to-Ambient Thermal Resistance ^b	$t \leq 10 \text{ s}$	$R_{\theta JA}$	125	150	
	Steady State		145	175	
Junction-to-Case Thermal Resistance	Steady State	$R_{\theta JC}$	30	38	

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

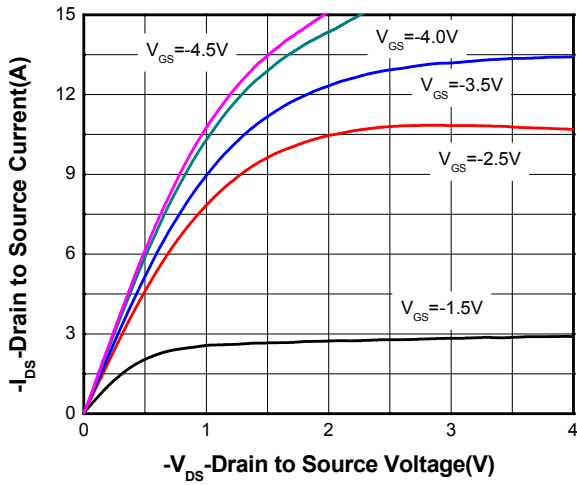
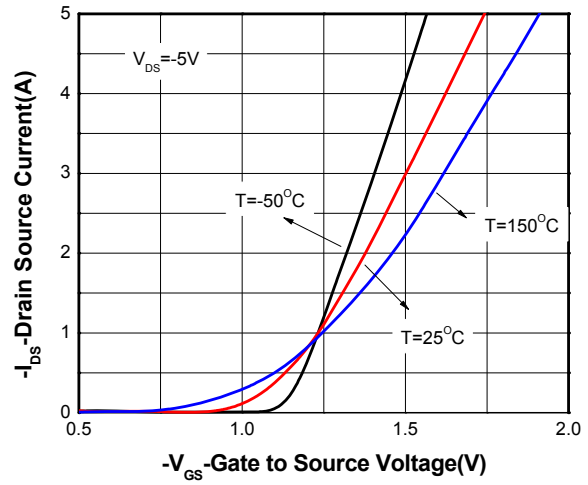
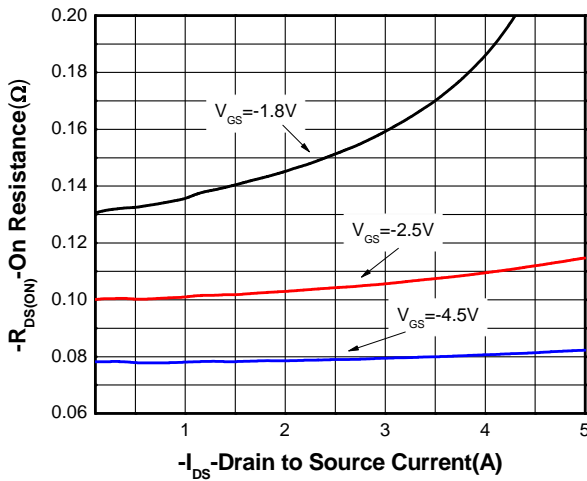
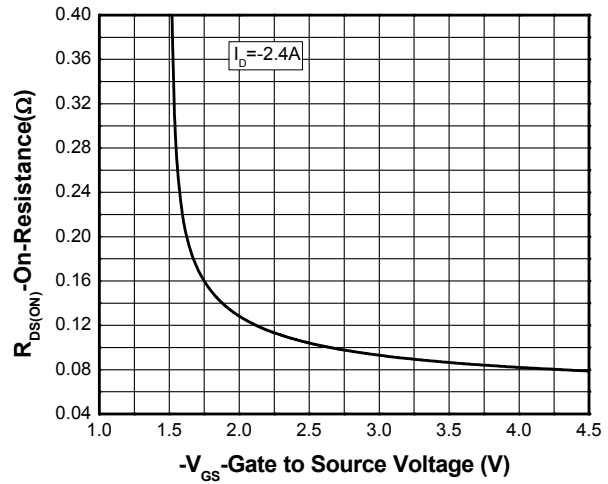
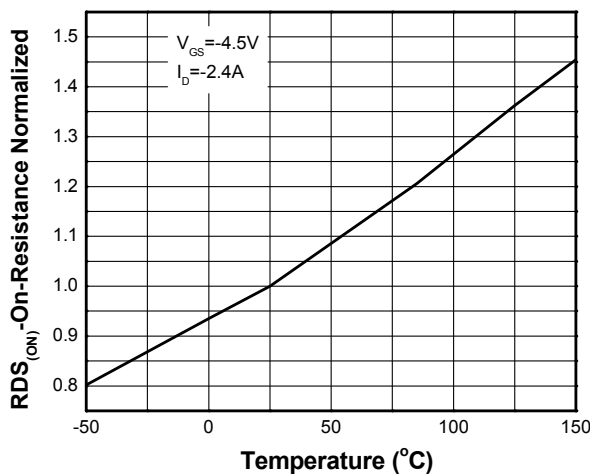
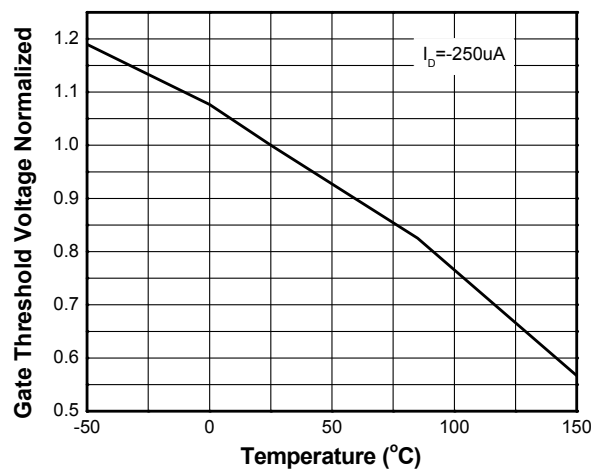
b Surface mounted on FR4 board using minimum pad size, 1oz copper

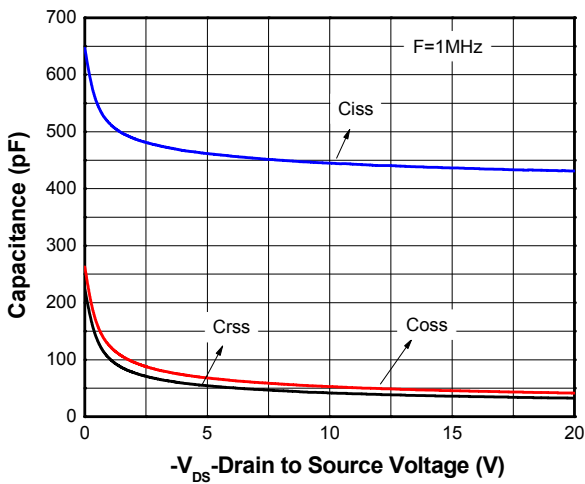
c Repetitive rating, pulse width limited by junction temperature, $t_p=10\mu\text{s}$, Duty Cycle=1%

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

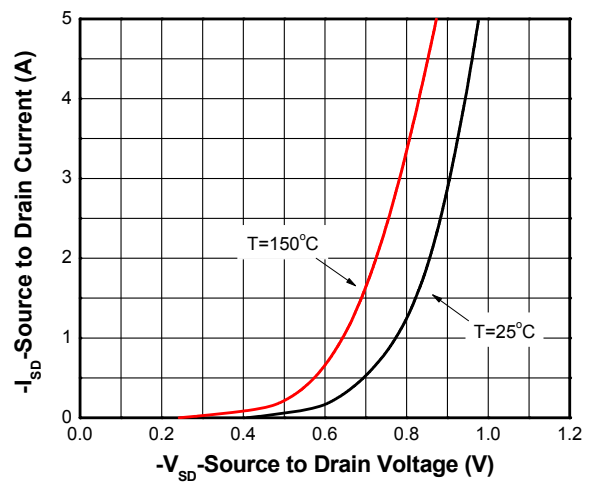
Electronics Characteristics (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-to-Source Breakdown Voltage	BV_{DSS}	$V_{GS} = 0\text{ V}, I_D = -250\mu\text{A}$	-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}	$V_{DS} = 0\text{ V}, V_{GS} = \pm 10\text{ V}$			± 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	$R_{DS(on)}$	$V_{GS} = -4.5\text{ V}, I_D = -2.4\text{ A}$		80	120	m Ω
		$V_{GS} = -2.5\text{ V}, I_D = -2.0\text{ A}$		100	150	
CHARGES, CAPACITANCES AND GATE RESISTANCE						
Input Capacitance	C_{ISS}	$V_{GS} = 0\text{ V}, f = 1.0\text{ MHz}, V_{DS} = -10\text{ V}$		444		pF
Output Capacitance	C_{OSS}			52		
Reverse Transfer Capacitance	C_{RSS}			41		
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

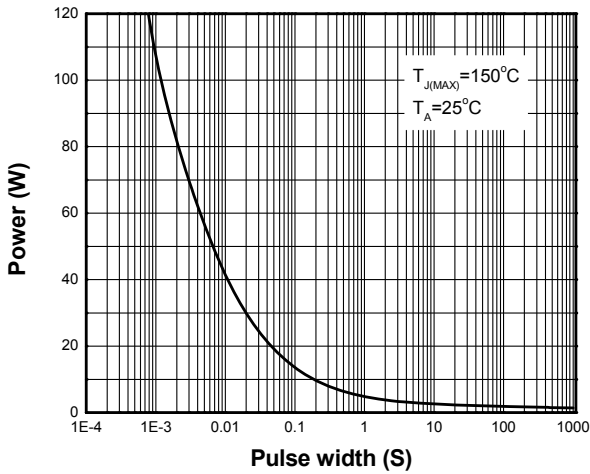
Typical Characteristics (Ta=25°C, unless otherwise noted)

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



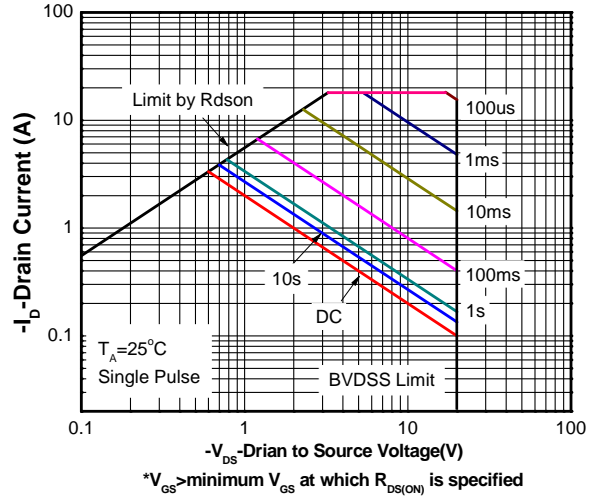
Capacitance



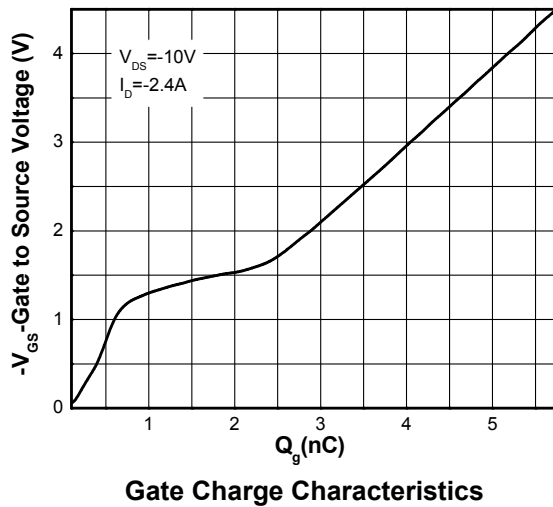
Body diode forward voltage



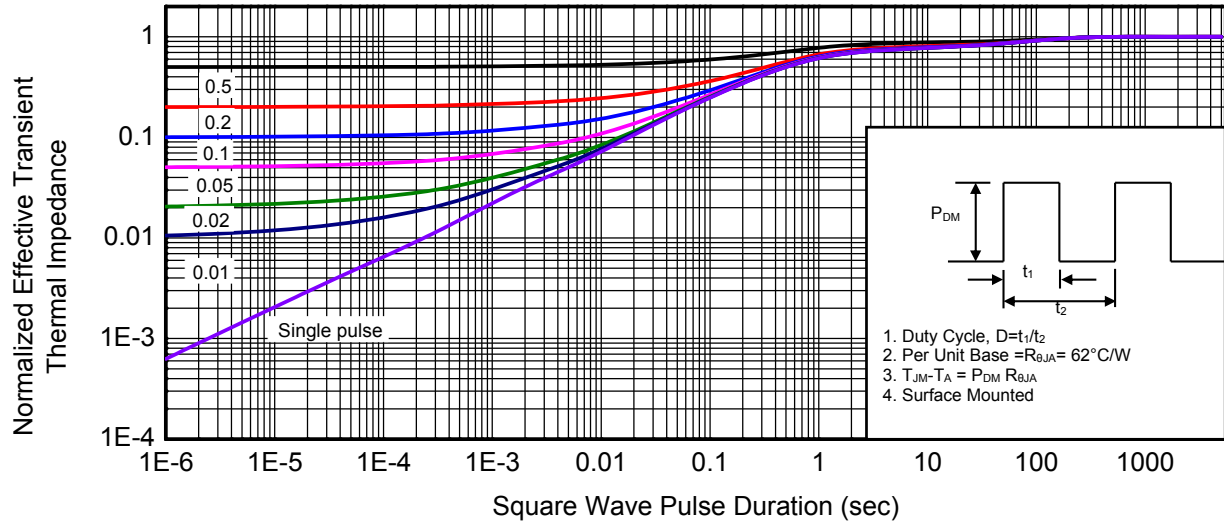
Single pulse power

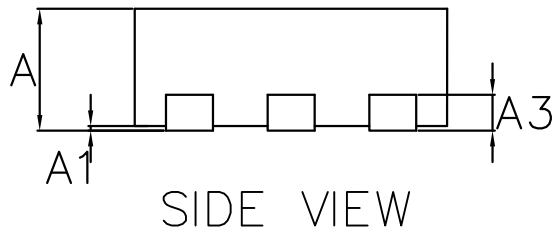
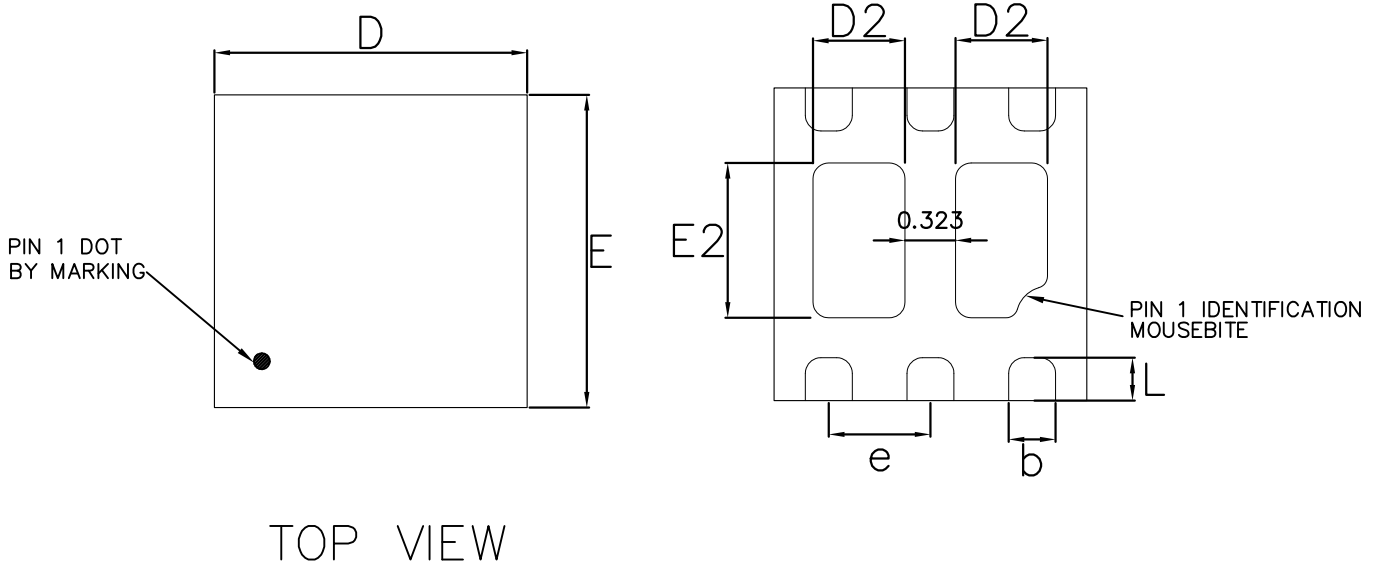


Safe operating power



Gate Charge Characteristics

Transient thermal response (Junction-to-Ambient)


Package outline dimensions
DFN2X2-6L


COMMON DIMENSIONS(MM)			
PKG.	W: VERY VERY THIN		
REF.	MIN.	NOM.	MAX
A	0.70	0.75	0.80
A1	0.00	—	0.05
A3	0.20 REF.		
D	1.95	2.00	2.05
E	1.95	2.00	2.05
D2	0.44	0.59	0.69
E2	0.84	0.99	1.09
b	0.25	0.30	0.35
L	0.175	0.275	0.375
e	0.65 BSC		