



### General Description

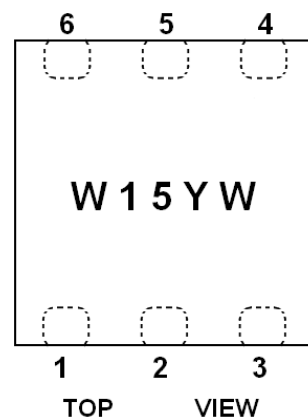
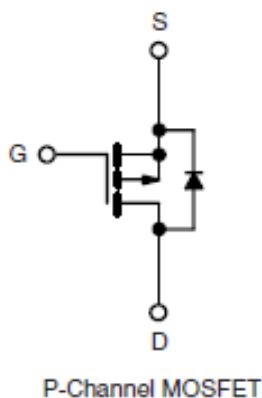
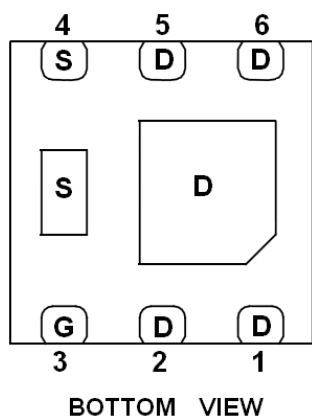
AFP2415WS, P-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent  $R_{DS(ON)}$ , low gate charge.

These devices are particularly suited for low voltage power management, such as smart phone and notebook computer and other battery powered circuits, and low in-line power loss are needed in commercial industrial surface mount applications.

### Features

- $I_D = -5.6A, R_{DS(ON)} = 32m\Omega @ V_{GS} = -4.5V$
- $I_D = -2.8A, R_{DS(ON)} = 42m\Omega @ V_{GS} = -2.5V$
- $I_D = -2.0A, R_{DS(ON)} = 60m\Omega @ V_{GS} = -1.8V$
- Super high density cell design for extremely low  $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- DFN2X2-6L package design

### Pin Description ( DFN2X2-6L )



### Application

- Load Switch, PA Switch and Battery Switch for Portable Devices

### Pin Define

Pin	Symbol	Description
1,2,5,6	D	Drain
4	S	Source
3	G	Gate

### Ordering Information

Part Ordering No.	Part Marking	Package	Unit	Quantity
AFP2415WSFN226RG	W15YW	DFN2X2-6L	Tape & Reel	4000 EA

※ W15 parts code

※ Y year code

※ W week code ( A ~ Z = 1 ~ 26 / a ~ z = 27 ~ 52 )

※ AFP2415WSFN226RG : 7" Tape & Reel ; Pb- Free ; Halogen- Free



### Absolute Maximum Ratings

(T<sub>A</sub>=25°C Unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V <sub>DSS</sub>	-20	V
Gate –Source Voltage	V <sub>GSS</sub>	±12	V
Continuous Drain Current(T <sub>J</sub> =150°C)	I <sub>D</sub>	T <sub>A</sub> =25°C	-8.4
		T <sub>A</sub> =70°C	-6.7
Pulsed Drain Current	I <sub>DM</sub>	-30	A
Continuous Source Current(Diode Conduction)	I <sub>S</sub>	-2.9	A
Power Dissipation	P <sub>D</sub>	T <sub>A</sub> =25°C	2.5
		T <sub>A</sub> =70°C	2.2
Operating Junction Temperature	T <sub>J</sub>	150	°C
Storage Temperature Range	T <sub>STG</sub>	-55/150	°C
Thermal Resistance-Junction to Ambient	R <sub>θJA</sub>	36	°C/W

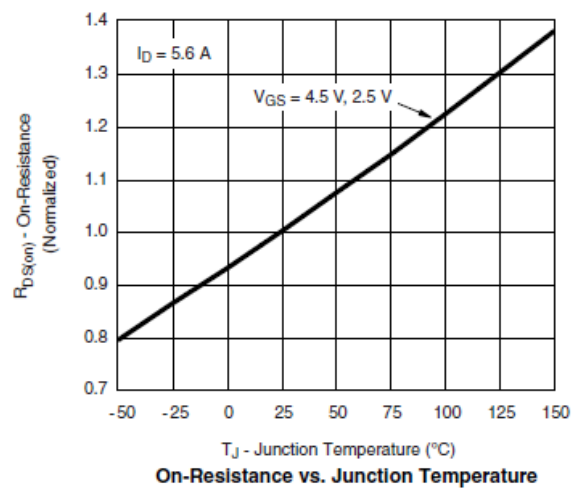
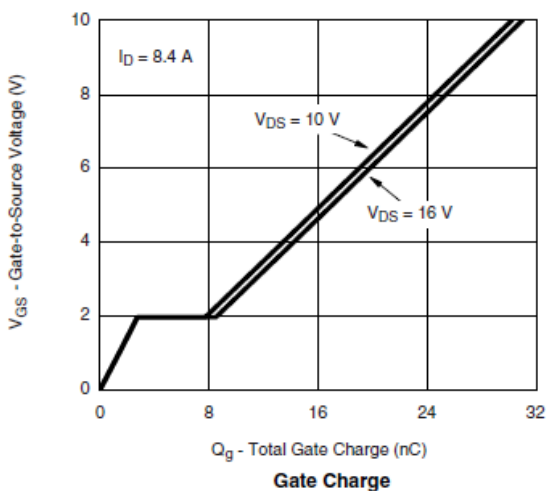
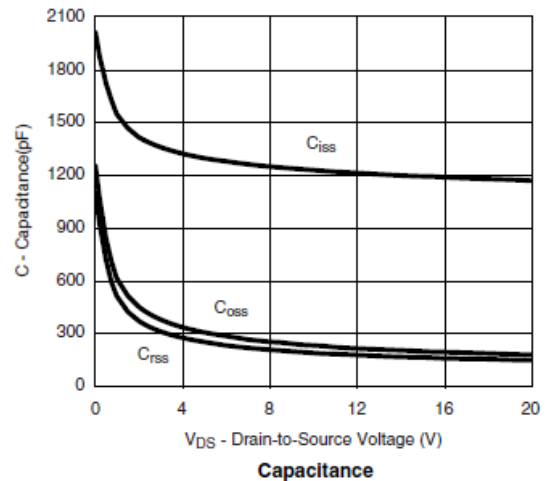
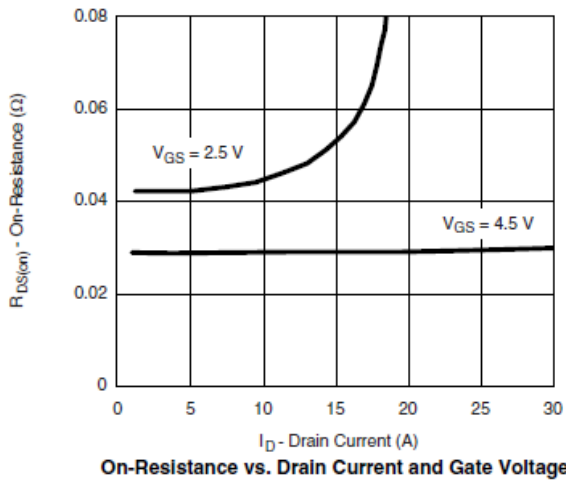
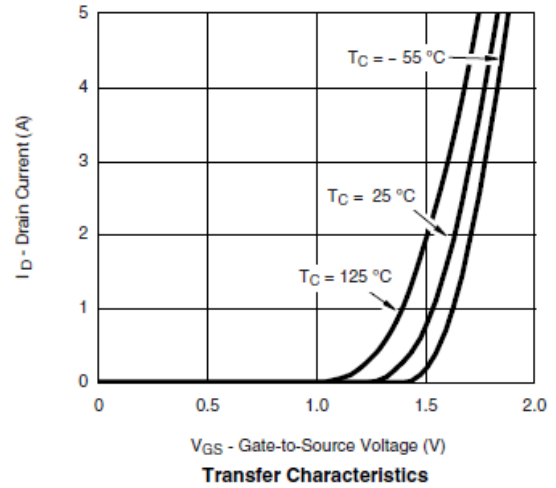
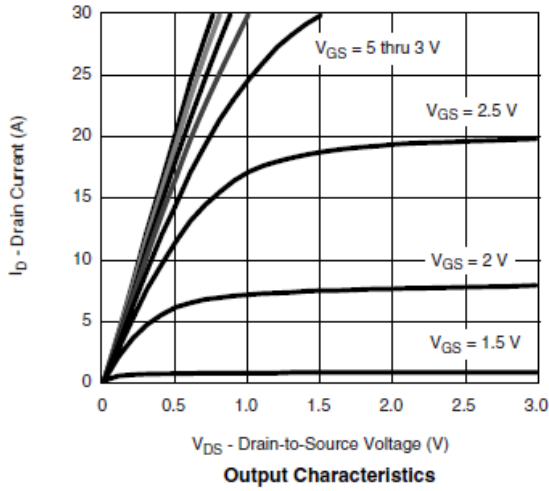
### Electrical Characteristics

(T<sub>A</sub>=25°C Unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
<b>Static</b>						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =-250uA	-20			V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-250uA	-0.5		-1.0	
Gate Leakage Current	I <sub>GSS</sub>	V <sub>DS</sub> =0V, V <sub>GS</sub> =±12V			±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =-16V, V <sub>GS</sub> =0V			-1	uA
		V <sub>DS</sub> =-16V, V <sub>GS</sub> =0V T <sub>J</sub> =85°C			-30	
On-State Drain Current	I <sub>D(on)</sub>	V <sub>DS</sub> ≤ -5V, V <sub>GS</sub> =-4.5V	-20			A
Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-5.6A		24	32	mΩ
		V <sub>GS</sub> =-2.5V, I <sub>D</sub> =-2.8A		33	42	
		V <sub>GS</sub> =-1.8V, I <sub>D</sub> =-2.0A		48	60	
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> =-10V, I <sub>D</sub> =-5.6A		20		S
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =-1.25A, V <sub>GS</sub> =0V		-0.75	-1.3	V
<b>Dynamic</b>						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =-10V, V <sub>GS</sub> =-4.5V I <sub>D</sub> ≡-8.4A		15	25	nC
Gate-Source Charge	Q <sub>gs</sub>			3		
Gate-Drain Charge	Q <sub>gd</sub>			5		
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =-10V, V <sub>GS</sub> =0V f=1MHz		1250		pF
Output Capacitance	C <sub>oss</sub>			300		
Reverse Transfer Capacitance	C <sub>rss</sub>			200		
Turn-On Time	t <sub>d(on)</sub>	V <sub>DD</sub> =-10V, R <sub>L</sub> =1.5Ω I <sub>D</sub> ≡-6.7A, V <sub>GEN</sub> =-4.5V R <sub>G</sub> =1Ω		25	50	ns
	t <sub>r</sub>			50	90	
Turn-Off Time	t <sub>d(off)</sub>			40	75	
	t <sub>f</sub>			20	40	

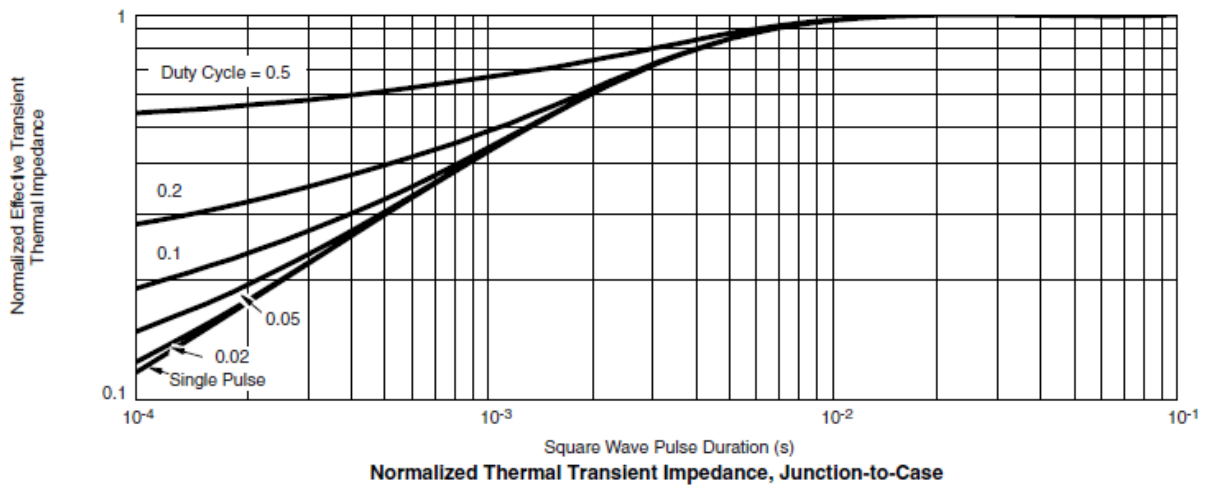
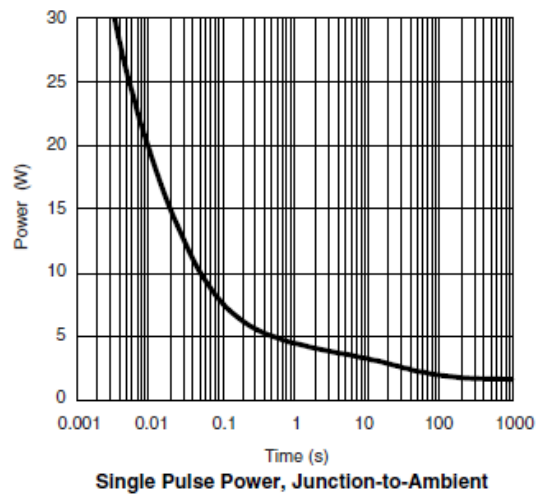
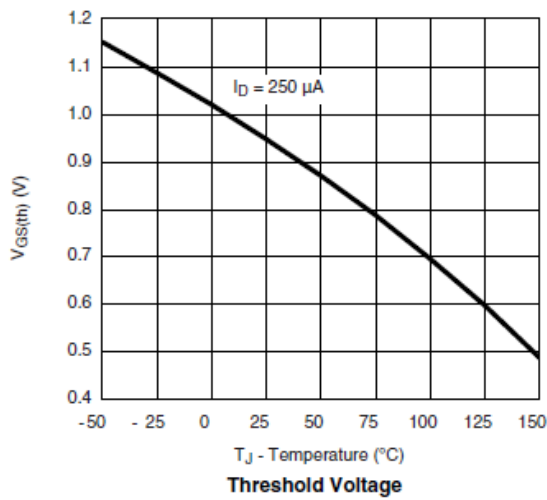
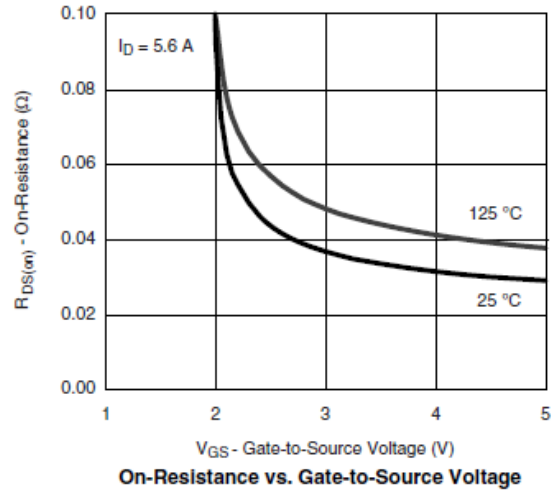
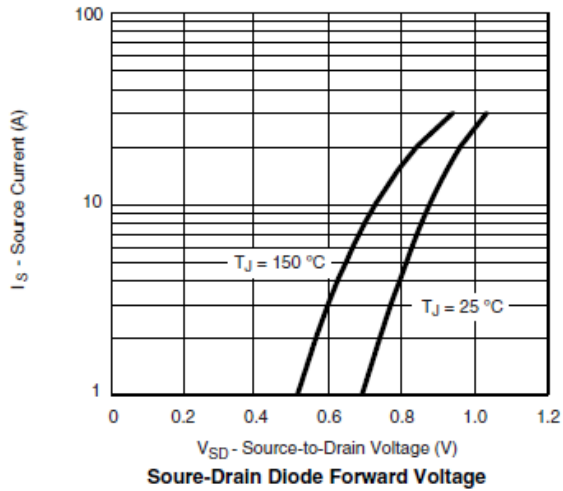


## Typical Characteristics





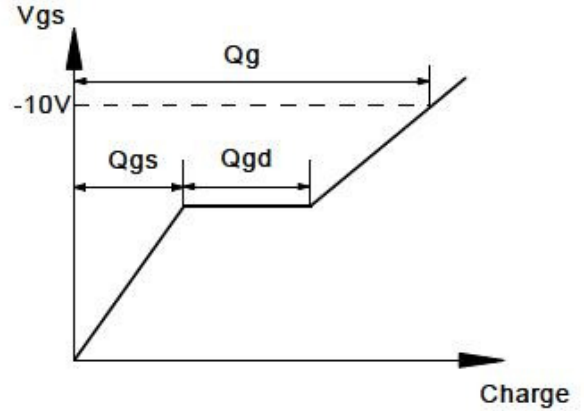
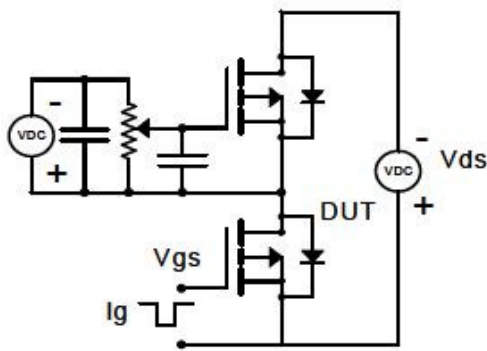
## Typical Characteristics



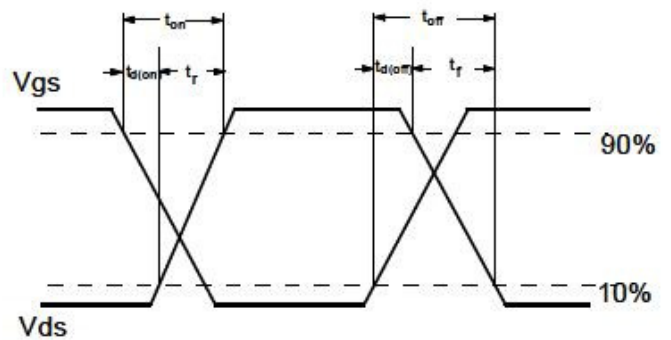
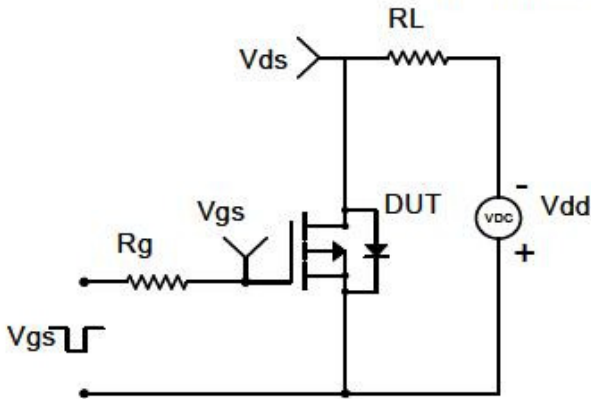


**Typical Characteristics**

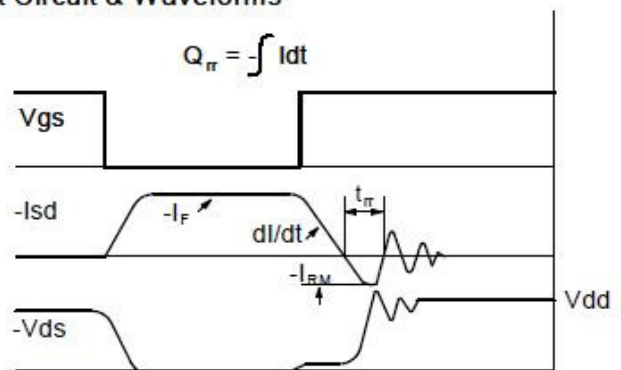
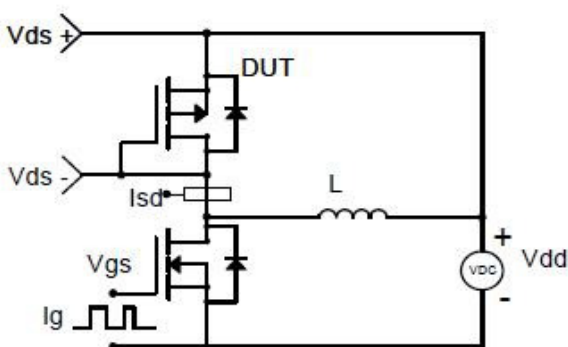
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

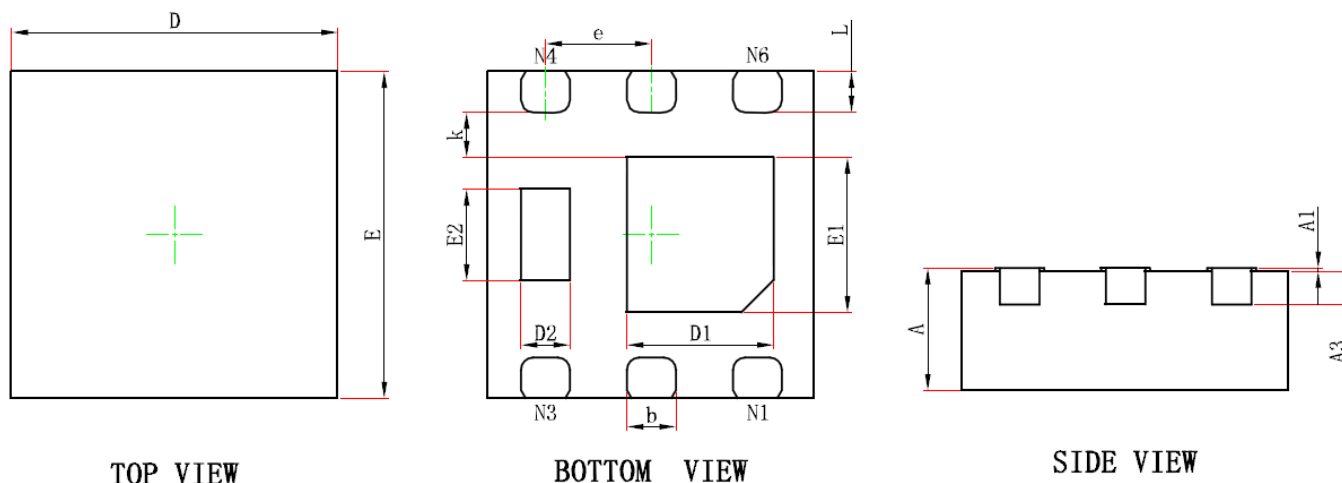


Diode Recovery Test Circuit & Waveforms





**Package Information ( DFN2X2-6L )**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.800	0.028	0.031
A1	0.000	0.050	0.000	0.002
A3	0.203REF.		0.008REF.	
D	1.924	2.076	0.076	0.082
E	1.924	2.076	0.076	0.082
D1	0.800	1.000	0.031	0.039
E1	0.850	1.050	0.033	0.041
D2	0.200	0.400	0.008	0.016
E2	0.460	0.660	0.018	0.026
k	0.200MIN.		0.008MIN.	
b	0.250	0.350	0.010	0.014
e	0.650TYP.		0.026TYP.	
L	0.174	0.326	0.007	0.013

©2010 Alfa-MOS Technology Corp.  
2F, No.80, Sec.1, Cheng Kung Rd., Nan Kang Dist., Taipei City 115, Taiwan (R.O.C.)  
Tel : 886 2) 2651 3928  
Fax : 886 2) 2786 8483  
©http://www.alfa-mos.com