



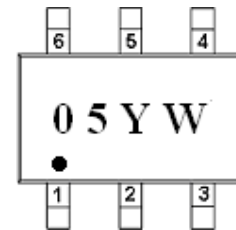
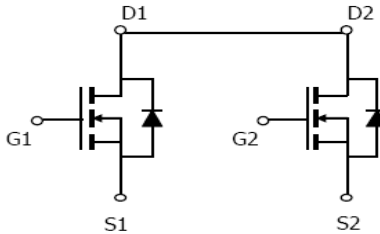
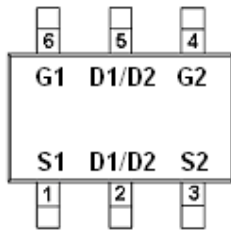
General Description

AFN8205, N-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

- 20V/4.5A, $R_{DS(ON)}=29m\Omega@V_{GS}=4.5V$
- 20V/3.2A, $R_{DS(ON)}=37m\Omega@V_{GS}=2.5V$
- 20V/2.4A, $R_{DS(ON)}=50m\Omega@V_{GS}=1.8V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- TSOP-6 package design

Pin Description (TSOP-6)



Application

- Load Switch
- Portable Equipment
- Battery Powered System

Pin Define

Pin	Symbol	Description
1	S1	Source
2	D1/D2	Drain
3	S2	Source
4	G2	Gate
5	D1/D2	Drain
6	G1	Source

Ordering Information

Part Ordering No.	Part Marking	Package	Unit	Quantity
AFN8205TS6RG	05YW	TSOP-6	Tape & Reel	3000 EA

- ※ 05 parts code
- ※ Y year code (0 ~ 9)
- ※ W week code (A ~ Z = 1 ~ 26 / a ~ z = 27 ~ 52)
- ※ AFN8205TS6RG : 7" Tape & Reel ; Pb- Free ; Halogen -Free



Absolute Maximum Ratings

(T_A=25°C Unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DSS}	20	V
Gate –Source Voltage	V _{GSS}	±12	V
Continuous Drain Current(T _J =150°C)	I _D	T _A =25°C 4.5	A
		T _A =70°C 3.2	
Pulsed Drain Current	I _{DM}	20	A
Continuous Source Current(Diode Conduction)	I _S	1.6	A
Power Dissipation	P _D	T _A =25°C 2.0	W
		T _A =70°C 1.3	
Operating Junction Temperature	T _J	150	°C
Storage Temperature Range	T _{STG}	-55/150	°C
Thermal Resistance-Junction to Ambient	R _{θJA}	120	°C/W

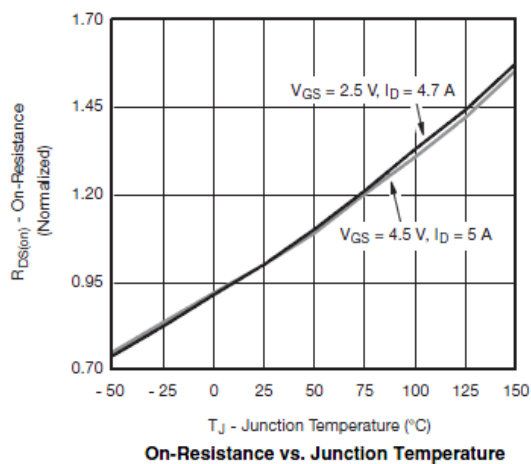
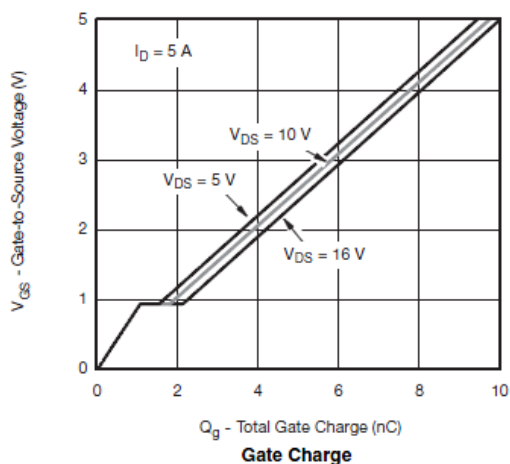
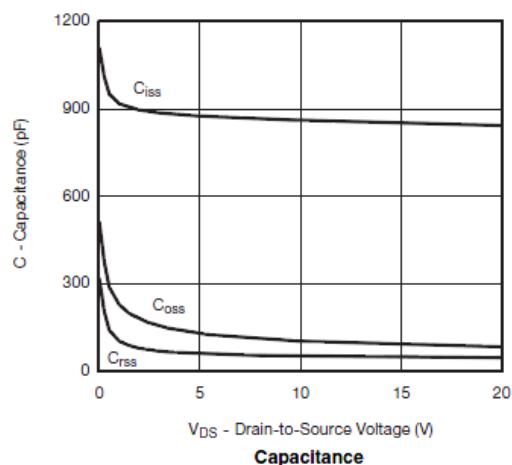
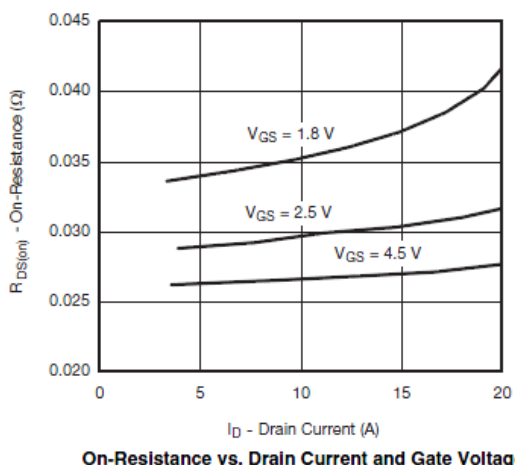
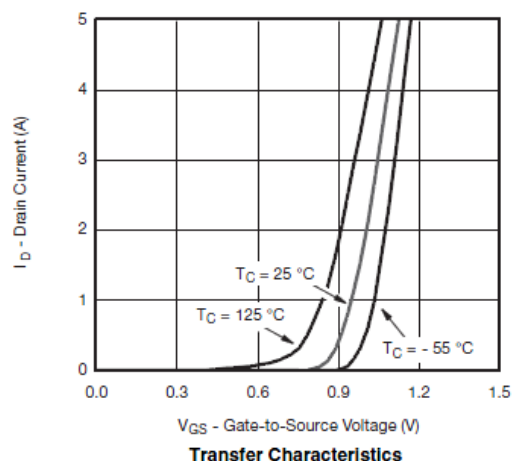
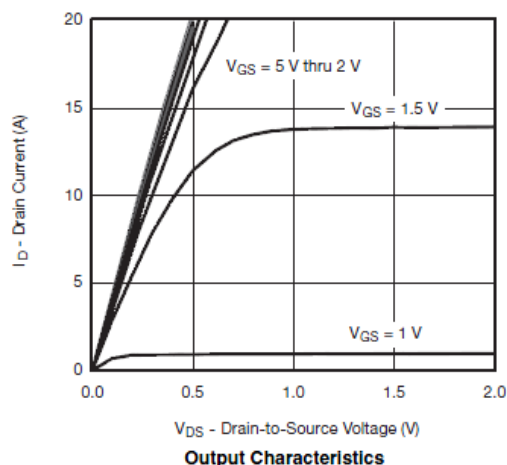
Electrical Characteristics

(T_A=25°C Unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250uA	20			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250uA	0.4		0.8	
Gate Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±12V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =16V, V _{GS} =0V			1	uA
		V _{DS} =16V, V _{GS} =0V T _J =85°C			10	
On-State Drain Current	I _{D(on)}	V _{DS} ≥ 5V, V _{GS} =4.5V	6			A
		V _{DS} ≥ 5V, V _{GS} =2.5V	4			
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =4.5V, I _D =4.5A		25	29	mΩ
		V _{GS} =2.5V, I _D =3.2A		30	37	
		V _{GS} =1.8V, I _D =2.4A		45	50	
Forward Transconductance	g _{FS}	V _{DS} =5V, I _D =3.6A		10		S
Diode Forward Voltage	V _{SD}	I _S =1.6A, V _{GS} =0V		0.85	1.2	V
Dynamic						
Total Gate Charge	Q _g	V _{DS} =10V, V _{GS} =4.5V I _D ≡4.0A		8.2	14	nC
Gate-Source Charge	Q _{gs}			1.2		
Gate-Drain Charge	Q _{gd}			1.0		
Input Capacitance	C _{iss}	V _{DS} =10V, V _{GS} =0V f=1MHz		850		pF
Output Capacitance	C _{oss}			120		
Reverse Transfer Capacitance	C _{rss}			60		
Turn-On Time	t _{d(on)}	V _{DD} =10V, R _L =2.2Ω I _D ≡4.0A, V _{GEN} =4.5V R _G =1Ω		10	16	ns
	t _r			16	25	
Turn-Off Time	t _{d(off)}			31	45	
	t _f			10	16	

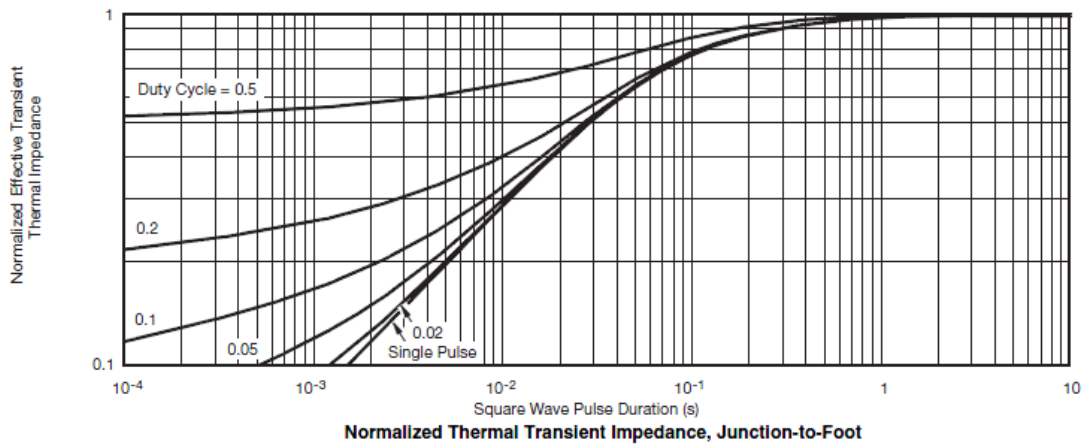
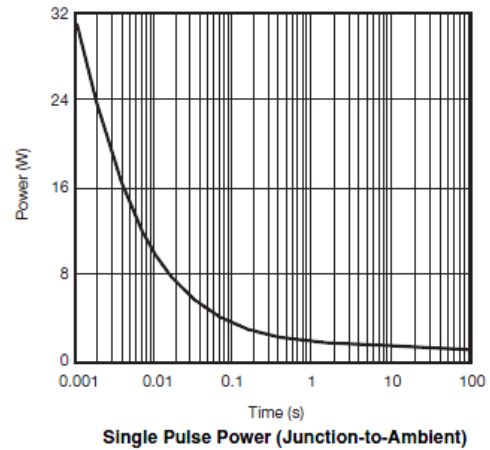
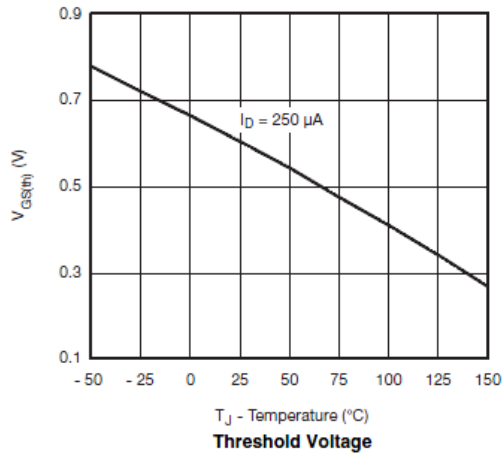
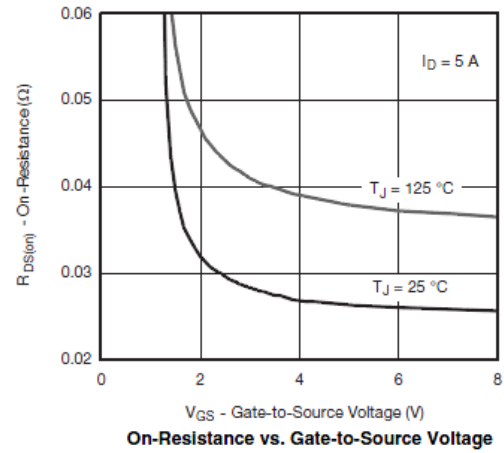
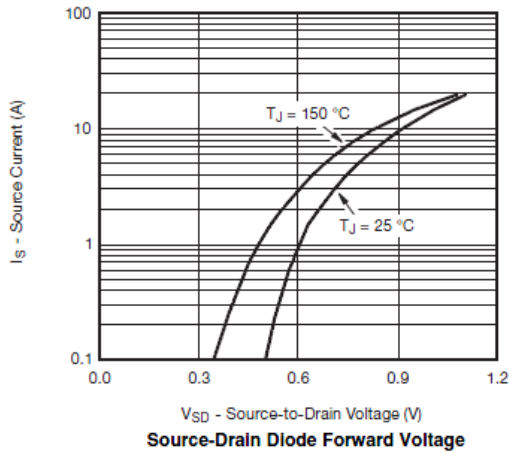


Typical Characteristics





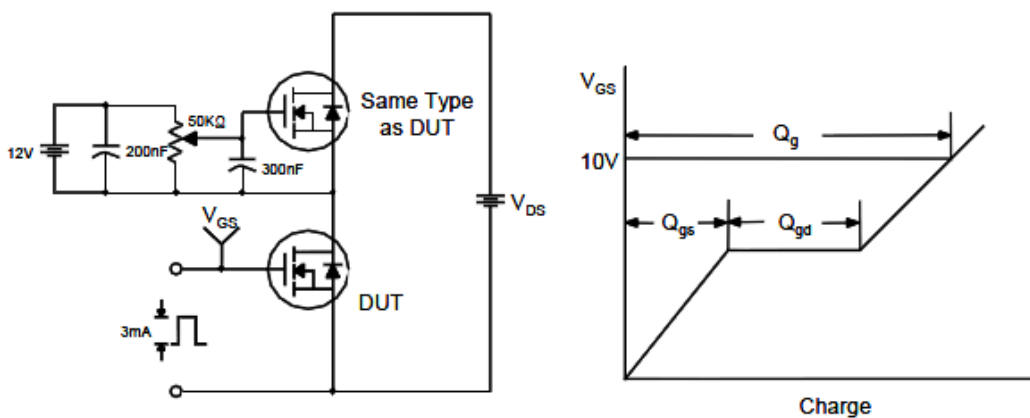
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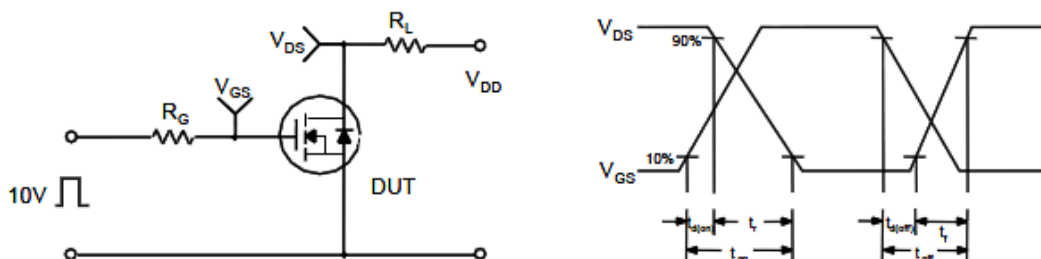


Typical Characteristics

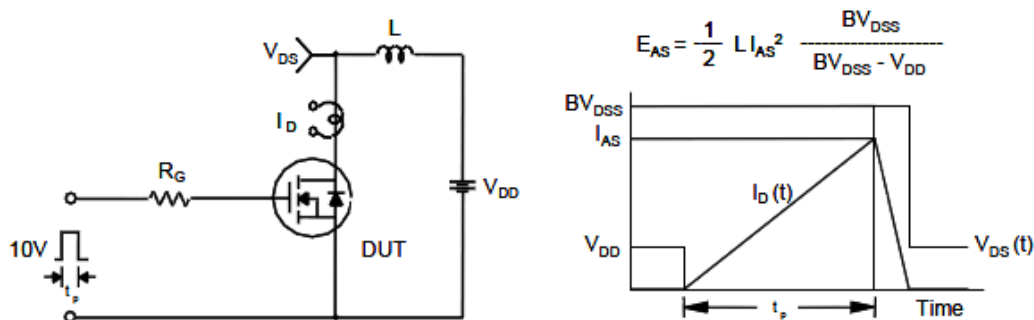
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

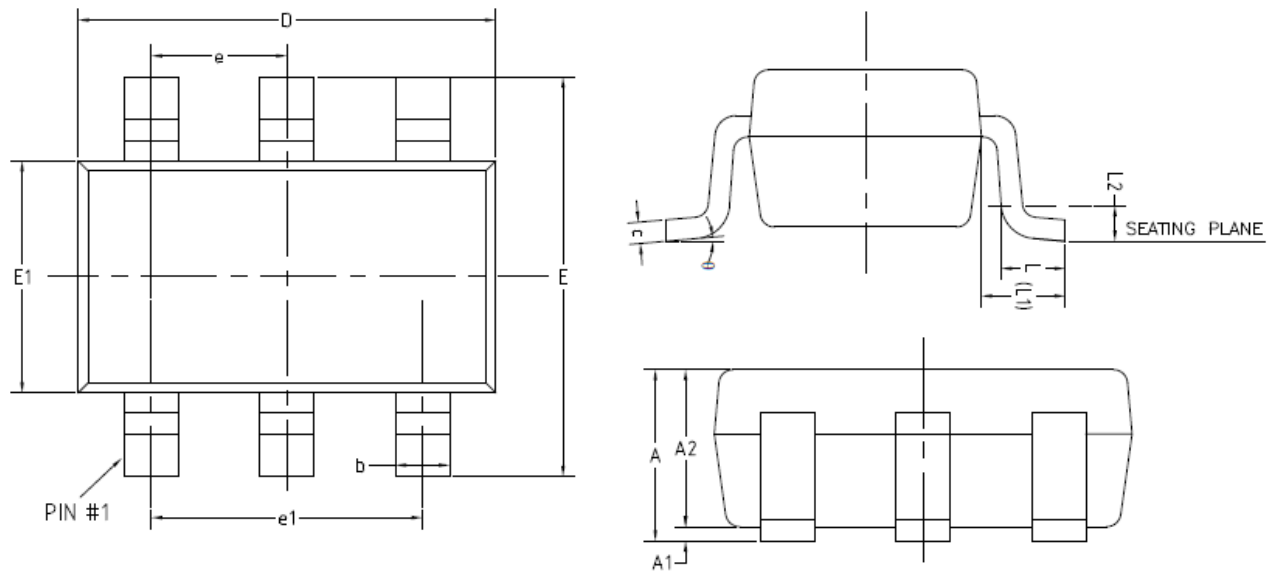


Unclamped Inductive Switching Test Circuit & Waveforms





Package Information (TSOP-6)



COMMON DIMENSIONS
(UNITS OF MEASURE=MILLIMETER)

SYMBOL	MIN	NOM	MAX
A	0.70	—	0.90
A1	0	—	0.10
A2	0.70	0.75	0.80
b	0.35	—	0.50
c	0.08	—	0.20
D	2.82	2.92	3.02
E	2.65	2.80	2.95
E1	1.60	1.65	1.70
e	0.95(BSC)		
e1	1.90(BSC)		
L	0.30	0.45	0.60
L1	0.59REF		
L2	0.25BSC		
θ	0°	—	8°

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