



General Description

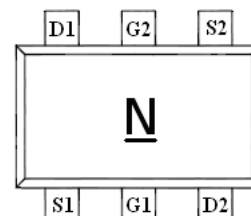
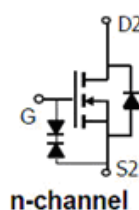
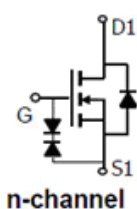
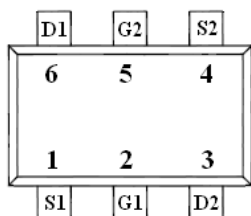
AFN1034E, N-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent $R_{DS(ON)}$, low gate charge.

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

Features

- 30V/0.6A, $R_{DS(ON)}=450m\Omega@V_{GS}=4.5V$
- 30V/0.5A, $R_{DS(ON)}=600m\Omega@V_{GS}=2.5V$
- Low Offset (Error) Voltage
- Low-Voltage Operation
- High-Speed Circuits
- Low Battery Voltage Operation
- ESD Protected
- SOT-563 package design

Pin Description (SOT-563)



Application

- Drivers: Relays, Solenoids, Lamps, Hammers, Displays, Memories
- Battery Operated Systems
- Power Supply Converter Circuits
- Load/Power Switching Smart Phones, Pagers

Pin Define

Pin	Symbol	Description
1	S1	Source 1
2	G1	Gate 1
3	D2	Drain 2
4	S2	Source 2
5	G2	Gate 2
6	D1	Drain1

Ordering Information

Part Ordering No.	Part Marking	Package	Unit	Quantity
AFN1034ES56RG	N	SOT-563	Tape & Reel	3000 EA

※ AFN1034ES56RG : 7" Tape & Reel ; Pb- Free ; Halogen- Free



Absolute Maximum Ratings

(T_A=25°C Unless otherwise noted)

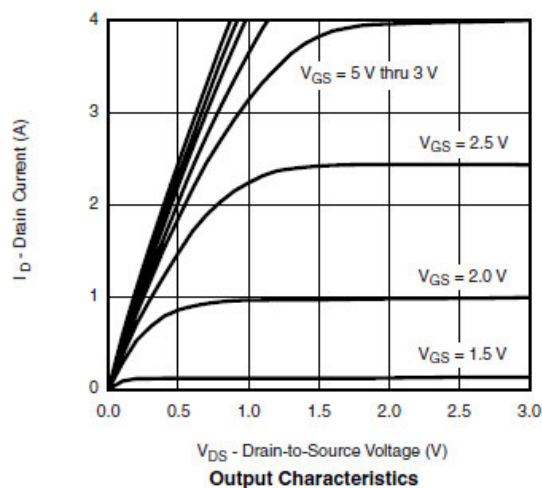
Parameter	Symbol	Typical	Unit
Drain-Source Voltage	V _{DSS}	30	V
Gate –Source Voltage	V _{GSS}	±12	V
Continuous Drain Current(T _J =150°C)	I _D	T _A =25°C 0.7	A
		T _A =70°C 0.4	
Pulsed Drain Current	I _{DM}	1.0	A
Continuous Source Current(Diode Conduction)	I _S	0.3	A
Power Dissipation	P _D	T _A =25°C 0.27	W
		T _A =70°C 0.16	
Operating Junction Temperature	T _J	-55/150	°C
Storage Temperature Range	T _{STG}	-55/150	°C

Electrical Characteristics

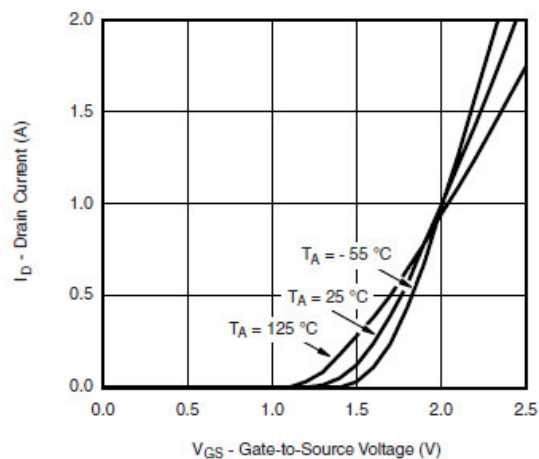
(T_A=25°C Unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250uA	30			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250uA	0.5		1.5	
Gate Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±12V			±5	mA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =24V, V _{GS} =0V			1	uA
		V _{DS} =24V, V _{GS} =0V T _J =85°C			5	
On-State Drain Current	I _{D(on)}	V _{DS} ≥ 5V, V _{GS} =4.5V	0.7			A
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =4.5V, I _D =0.6A		400	450	mΩ
		V _{GS} =2.5V, I _D =0.5A		550	600	
Forward Transconductance	g _{FS}	V _{DS} =10V, I _D =0.4A		1		S
Diode Forward Voltage	V _{SD}	I _S =0.15A, V _{GS} =0V		0.6	1.2	V
Dynamic						
Input Capacitance	C _{iss}	V _{DS} =15V, V _{GS} =0V f=1MHz		85		pF
Output Capacitance	C _{oss}			25		
Reverse Transfer Capacitance	C _{rss}			15		
Total Gate Charge	Q _g	V _{DS} =15V, V _{GS} =4.5V I _D ≅0.6A		1.4	1.8	nC
Gate-Source Charge	Q _{gs}			0.3		
Gate-Drain Charge	Q _{gd}			0.6		
Turn-On Time	t _{d(on)}	V _{DD} =15V, R _L =20Ω I _D ≅0.5A, V _{GEN} =4.5V R _G =1Ω		15	25	ns
	t _r			25	45	
Turn-Off Time	t _{d(off)}			15	25	
	t _f			10	20	

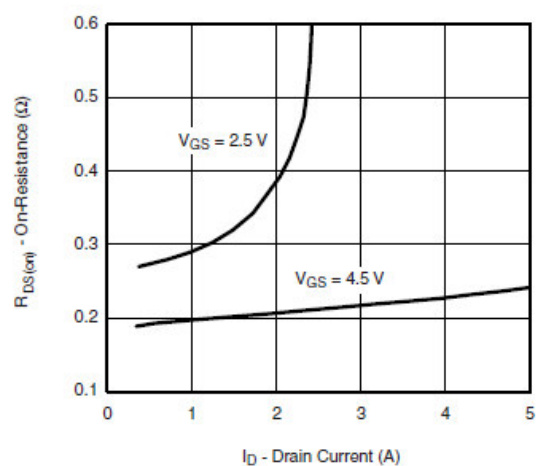
Typical Characteristics



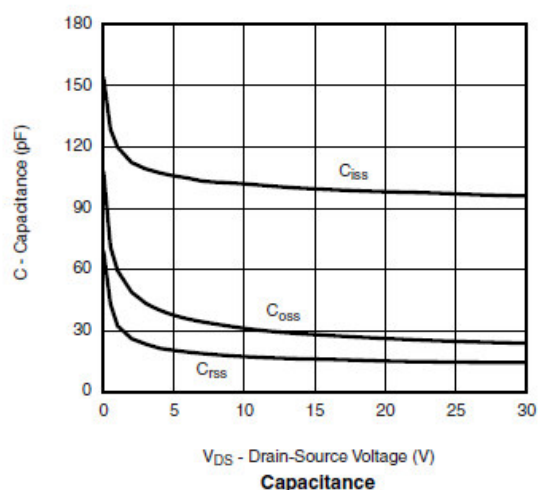
Output Characteristics



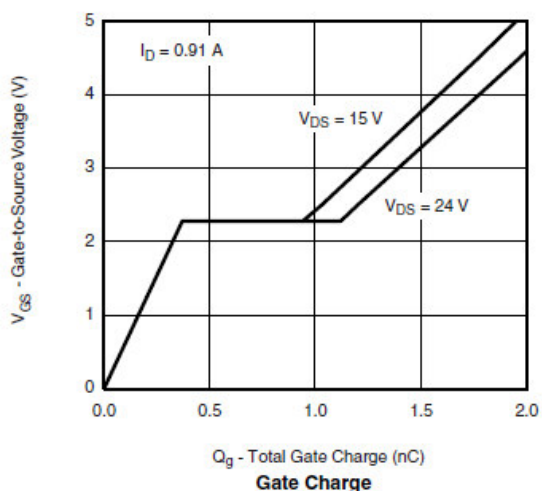
Transfer Characteristics Curves vs. Temperature



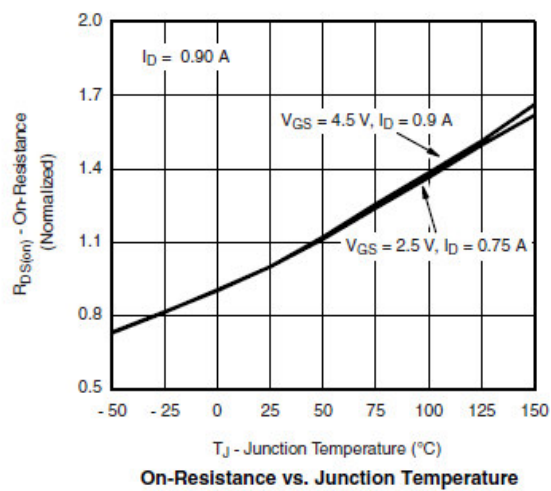
On-Resistance vs. Drain Current



Capacitance

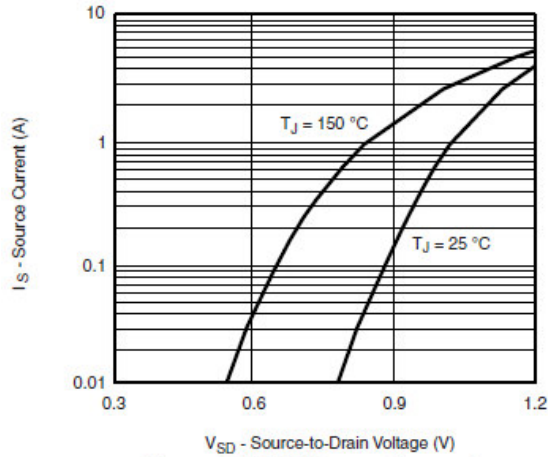


Gate Charge

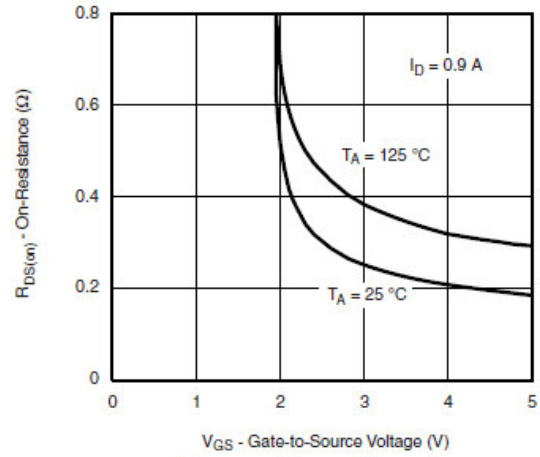


On-Resistance vs. Junction Temperature

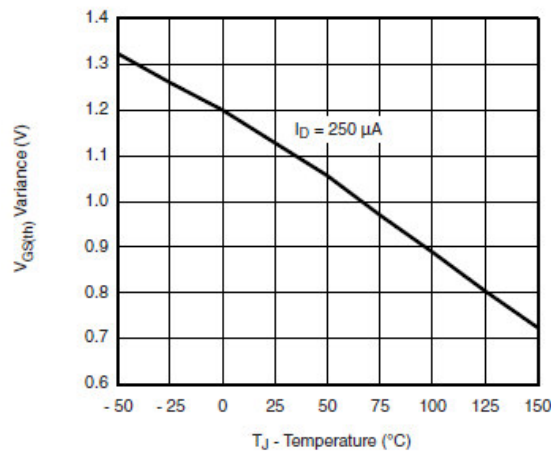
Typical Characteristics



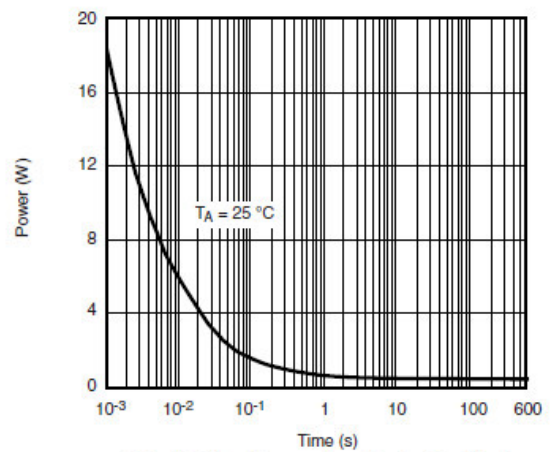
Forward Diode Voltage vs. Temperature



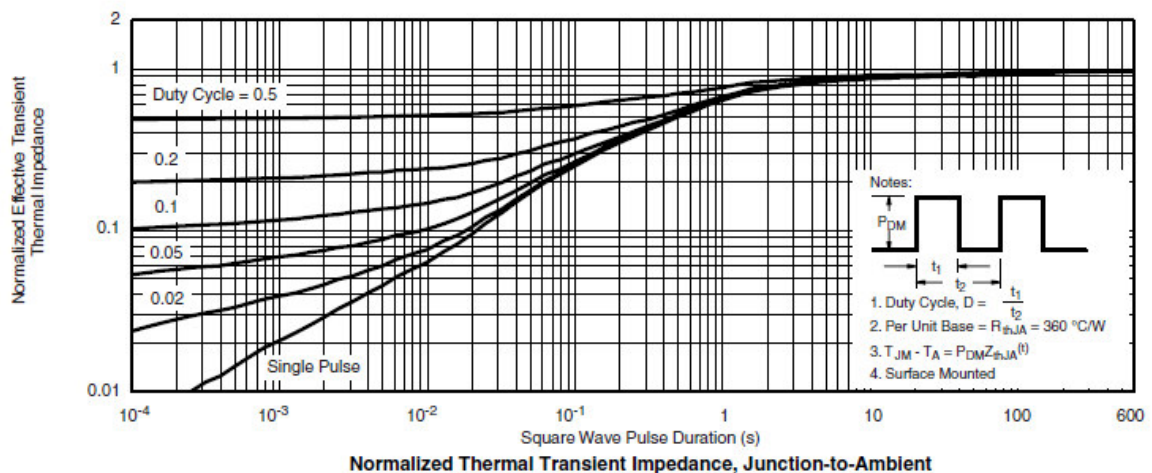
$R_{DS(on)}$ vs. V_{GS} vs. Temperature



Threshold Voltage



Single Pulse Power, Junction-to-Ambient

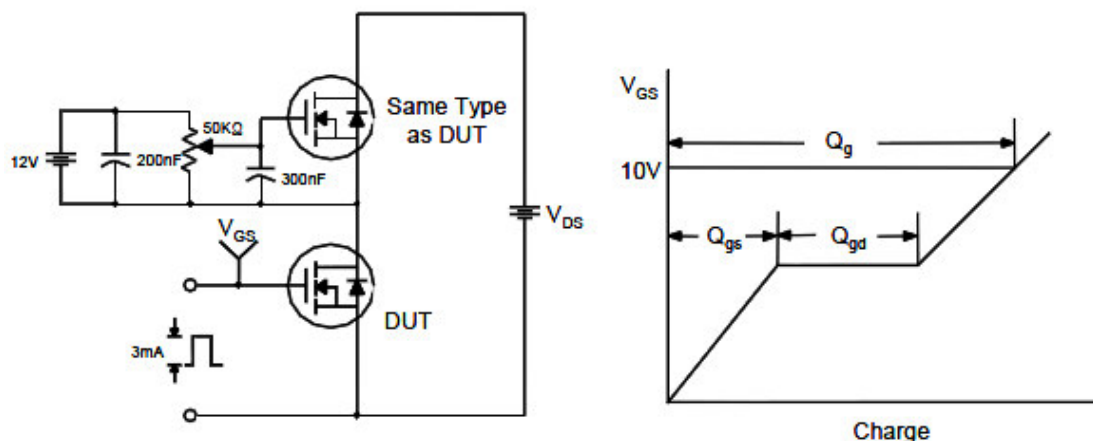


Normalized Thermal Transient Impedance, Junction-to-Ambient

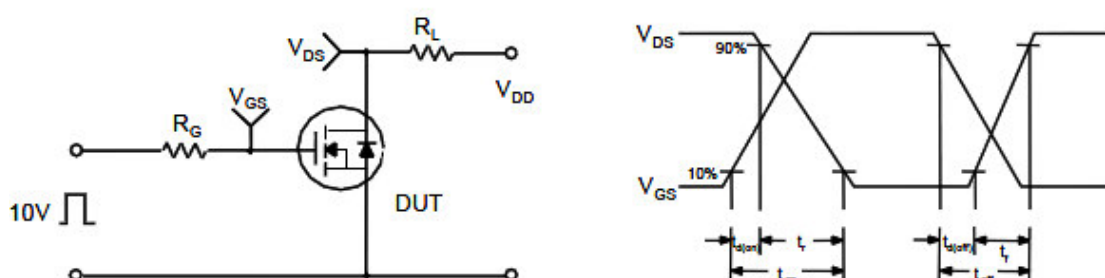
Typical Characteristics



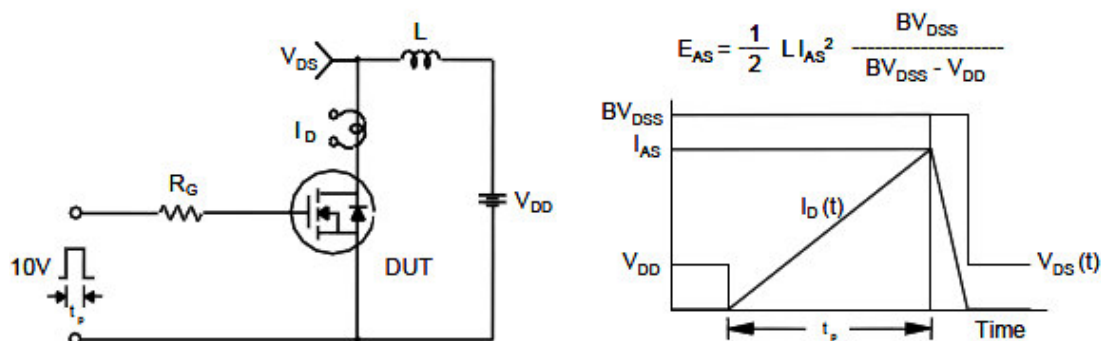
Gate Charge Test Circuit & Waveform



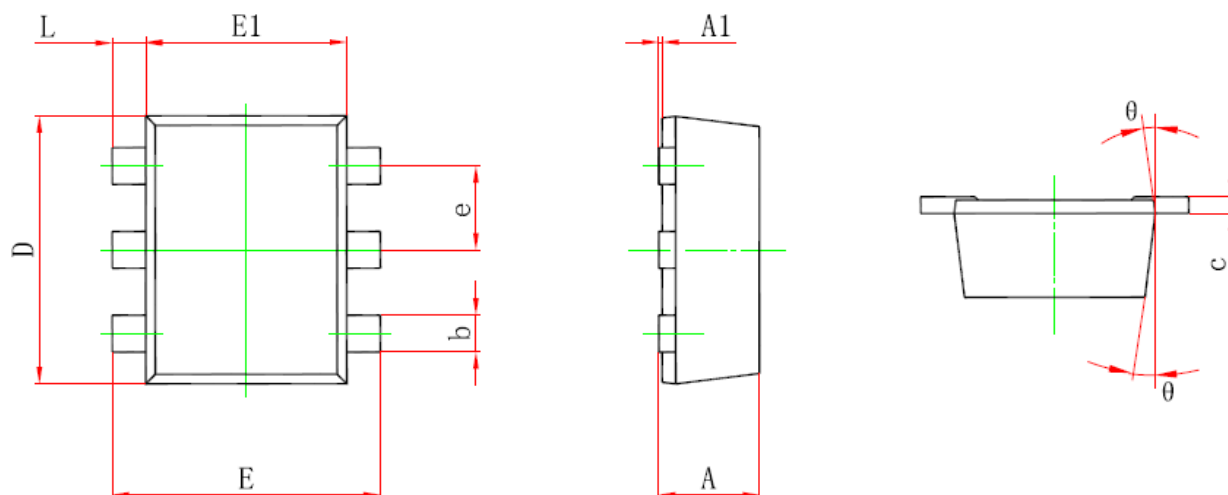
Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching Test Circuit & Waveforms



Package Information (SOT-563)



Symbol	Dimenslons In Millimeters		Dimenslons In Inches	
	Min.	Max.	Min.	Max.
A	0.525	0.600	0.021	0.024
A1	0.000	0.050	0.000	0.002
e	0.450	0.550	0.018	0.022
c	0.090	0.160	0.004	0.006
D	1.500	1.700	0.059	0.067
b	0.170	0.270	0.007	0.011
E1	1.100	1.300	0.043	0.051
E	1.500	1.700	0.059	0.067
L	0.100	0.300	0.004	0.012
θ	7 °REF.		7 °REF.	

©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