



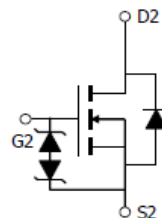
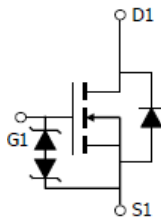
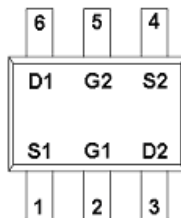
General Description

AFN7002DS, 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

- 60V/0.5A, $R_{DS(ON)}=3000m\Omega@V_{GS}=10V$
- 60V/0.3A, $R_{DS(ON)}=4000m\Omega@V_{GS}=5V$
- Low Offset (Error) Voltage
- Low-Voltage Operation
- High-Speed Circuits
- Low Battery Voltage Operation
- **ESD (1KV) Protected**
- SOT-363 package design

Pin Description (SOT-363)



Application

- Drivers: Relays, Solenoids, Lamps, Hammers, Displays, Memories
- Battery Operated Systems
- Load/Power Switching Smart Phones, Pagers
- PA Switch
- Level Switch

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
AFN7002DSS36RG	702	SOT-363	Tape & Reel	3000 EA

- ※ 702 parts code
- ※ W Month code
- ※ AFN7002DSS36RG : 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}	60	V
Gate –Source Voltage	V _{GSS}	±20	V
Continuous Drain Current(T _J =150°C)	I _D	T _A =25°C 0.64	A
		T _A =70°C 0.35	
Pulsed Drain Current	I _{DM}	0.8	A
Continuous Source Current(Diode Conduction)	I _S	0.64	A
Power Dissipation	P _D	T _A =25°C 0.3	W
		T _A =70°C 0.2	
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	60			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250uA	1.0	1.4	1.8	
Gate Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±1	mA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =60V, V _{GS} =0V			1	uA
		V _{DS} =60V, V _{GS} =0V T _J =125°C			500	
On-State Drain Current	I _{D(on)}	V _{DS} ≥ 2V, V _{GS} =10V	0.5			A
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =0.5A		1900	3000	mΩ
		V _{GS} =5V, I _D =0.3A		2400	4000	
Forward Transconductance	g _{FS}	V _{DS} =2V, I _D =0.2A	0.08			S
Diode Forward Voltage	V _{SD}	I _S =0.115A, V _{GS} =0V			1.5	V
Dynamic						
Input Capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V f=1MHz		17	50	pF
Output Capacitance	C _{oss}			10	25	
Reverse Transfer Capacitance	C _{rss}			3	5	
Turn-On Time	t _{d(on)}	V _{DD} =25V, R _L =50Ω		7	20	ns
Turn-Off Time	t _{d(off)}	I _D ≅0.5A, V _{GEN} =10V, R _G =25Ω		11	40	



Typical Characteristics

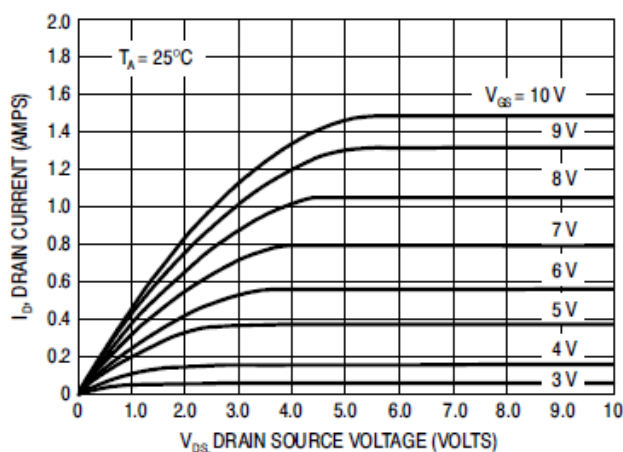


Figure 1. Ohmic Region

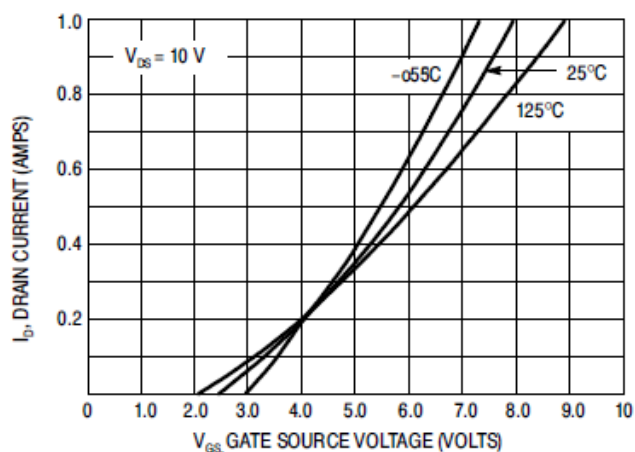


Figure 2. Transfer Characteristics

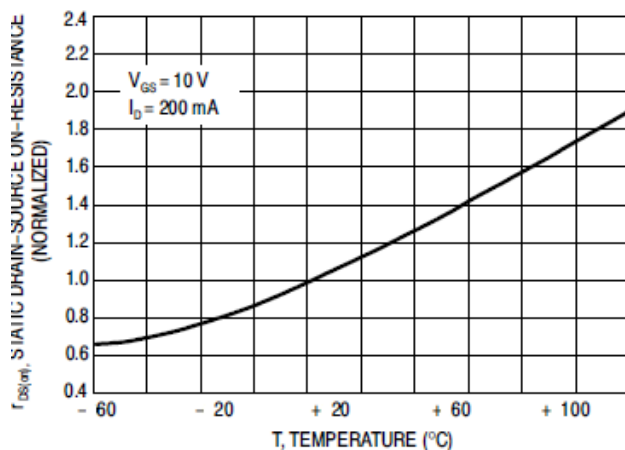


Figure 3. Temperature versus Static
Drain-Source On-Resistance

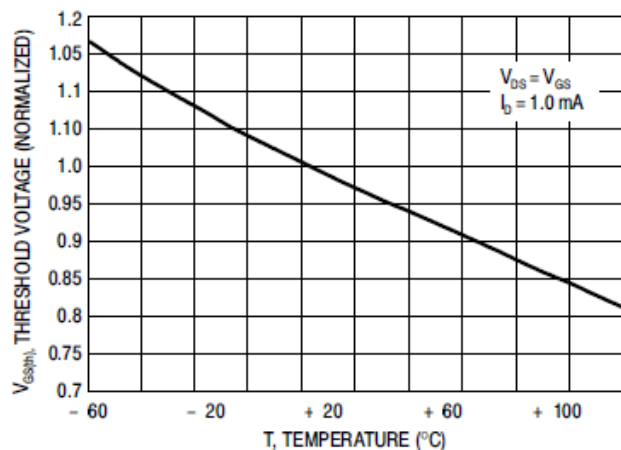
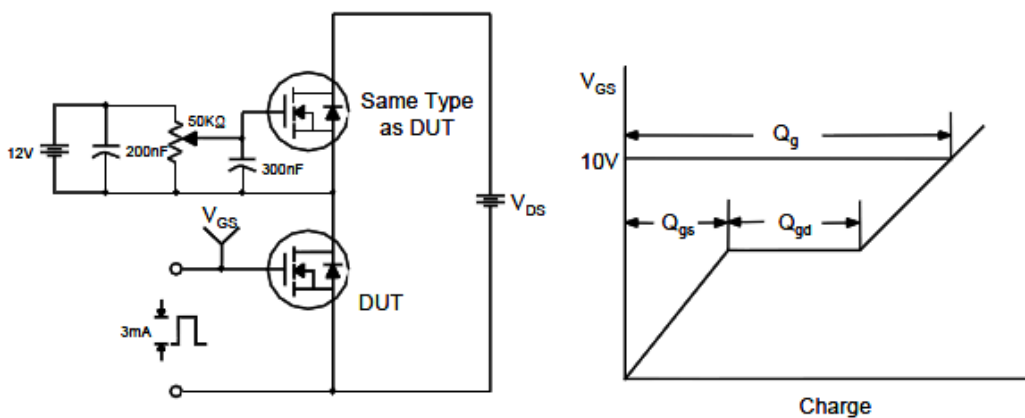


Figure 4. Temperature versus Gate
Threshold Voltage

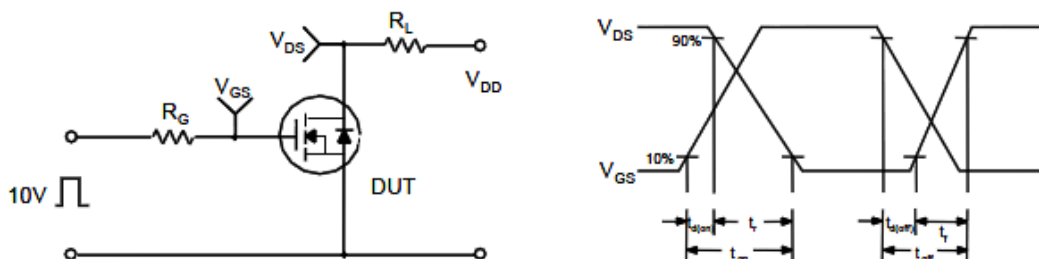


Typical Characteristics

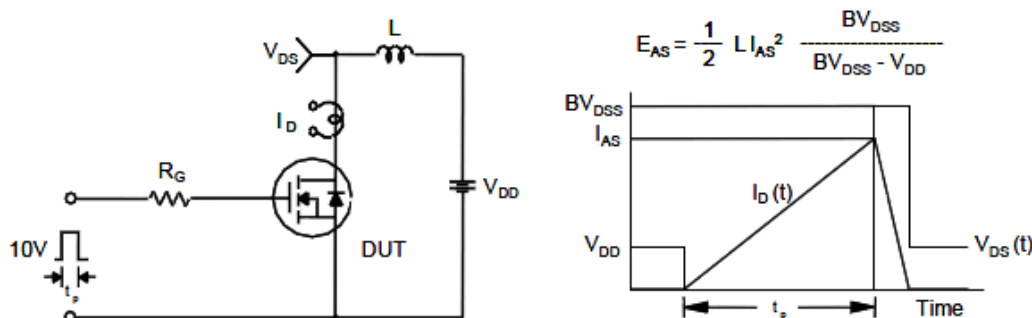
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

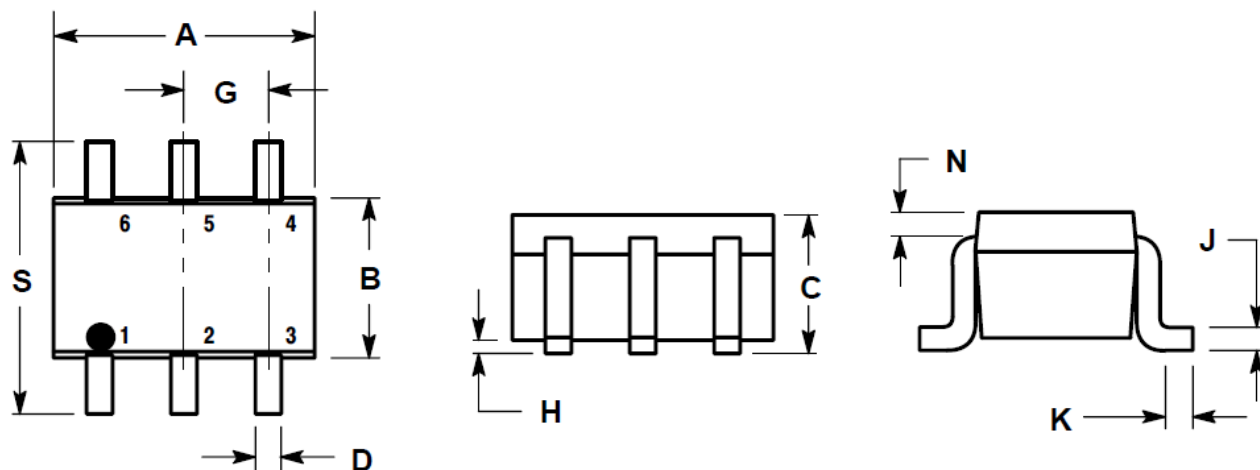


Unclamped Inductive Switching Test Circuit & Waveforms





Package Information (SOT-363)



DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.071	0.087	1.80	2.20
B	0.045	0.053	1.15	1.35
C	0.031	0.043	0.80	1.10
D	0.004	0.012	0.10	0.30
G	0.026 BSC		0.65 BSC	
H	---	0.004	---	0.10
J	0.004	0.010	0.10	0.25
K	0.004	0.012	0.10	0.30
N	0.008 REF		0.20 REF	
S	0.079	0.087	2.00	2.20

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