60V N-Channel MOSFET

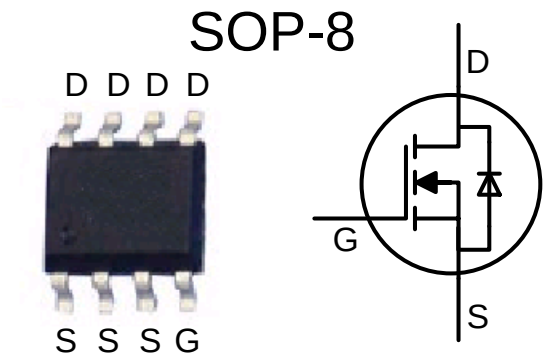
General Features

- Fast Switching Speed
- RoHS Compliant
- Halogen-free available

BV_{DSS}	$R_{DS(ON)}$ (Typ.)	I_D
60V	11mΩ	15A

Applications

- Power Management in Inverter System
- Synchronous Rectification



Ordering Information

Part Number	Package	Marking	Remark
FTE11N06G	SOP-8	11N06G	Halogen Free

Absolute Maximum Ratings

T_A=25℃ unless otherwise specified

Symbol	Parameter		Rating	Unit
V_{DSS}	Drain-Source Voltage[1]		60	V
V_{GS}	Gate –Source Voltage		±25	V
I_D	Continuous Drain Current	T_C=25 ℃	15	A
		T_C=100 ℃	10	A
I_{DP}	300us Pulsed Drain Current Tested[2]		30	A
P_D	Power Dissipation		5.2	W
	Derating Factor above 25 ℃		0.04	W/℃
T_J and T_{STG}	Operating and Storage Temperature Range		-55 ~ 150	℃

**Drain Current limited by Maximum Junction Temperature.*

Caution: Stresses greater than those listed in the "Absolute Maximum Ratings" may cause permanent damage to the device.

Thermal Characteristics

Symbol	Parameter	Rating	Unit
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case	24	℃/W
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	85	

Electrical Characteristics

OFF Characteristics(TA=25 ℃ unless otherwise noted)

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
BV_{DSS}	Drain-Source Breakdown Voltage	60	--	--	V	V_{GS}=0V, I_D=250μA
I_{DSS}	Zero Gate Voltage Drain Current	--	--	1	μA	V_{DS}=48V, V_{GS}=0V,
I_{GSS}	Gate Leakage Current	--	--	100	nA	V_{GS}=20V, V_{DS}=0V
		--	--	-100	nA	V_{GS}=-20V, V_{DS}=0V

On Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
$R_{DS(ON)}$	Drain-Source On-Resistance[3]	--	11	15	mΩ	V_{GS}=10V, I_D=15A
		--	16	18	mΩ	V_{GS}=5V, I_D=10A
$V_{GS(TH)}$	Gate Threshold Voltage	2	--	4	V	V_{DS} = V_{GS}, I_D=250μA
GFS	Forward Transconductance	--	--	--	S	V_{DS}=30V, I_D=40A

Dynamic Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
R_G	Gate Resistance	--	1.2	--	Ω	V_{GS}=0V,V_{DS}=0V, f=1MHz
C_{iss}	Input Capacitance	--	--	--	pF	V_{GS}=0V,V_{DS}=30V, f=1MHz
C_{oss}	Output Capacitance	--	--	--		
C_{rss}	Reverse Transfer Capacitance	--	--	--		
Q_g	Total Gate Charge	--	--	--	nC	V_{DS}=30V,V_{GS}=10V, I_D=15A
Q_{gs}	Gate-Source Charge	--	--	--		
Q_{gd}	Gate-Drain Charge	--	--	--		

Resistive Switch Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
$t_{d(on)}$	Turn-On Delay Time	--	--	--	ns	V_{DD}=30V,R_L=30Ω I_D=1.0A,V_{GS}=10V R_G=6Ω
t_r	Turn-On Rise Time	--	--	--		
$t_{d(off)}$	Turn-Off Delay Time	--	--	--		
t_f	Turn-Off Fall Time	--	--	--		

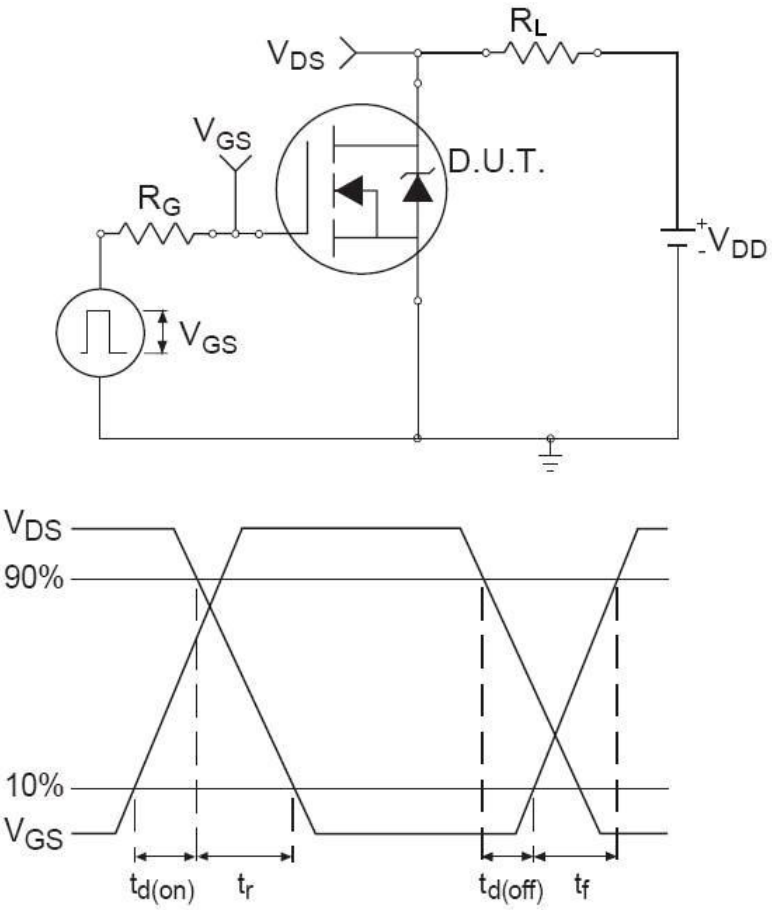
Source-Drain Diode Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
I_{SD}	Continuous Source Current(Body Diode)	--	--	15	A	Integral P-N diode in MOSFET
I_{SM}	Maximum Pulsed Current(Body Diode)	--	--	30	A	
V_{SD}	Diode Forward Voltage	--	--	1.2	V	I_{SD}=15A,V_{GS}=0V
t_{rr}	Reverse Recovery Time	--	--	--	ns	I_{SD}=15A, dI_{SD}/dt=100A/μA
Q_{rr}	Reverse Recovery Charge	--	--	--	nC	

NOTE：

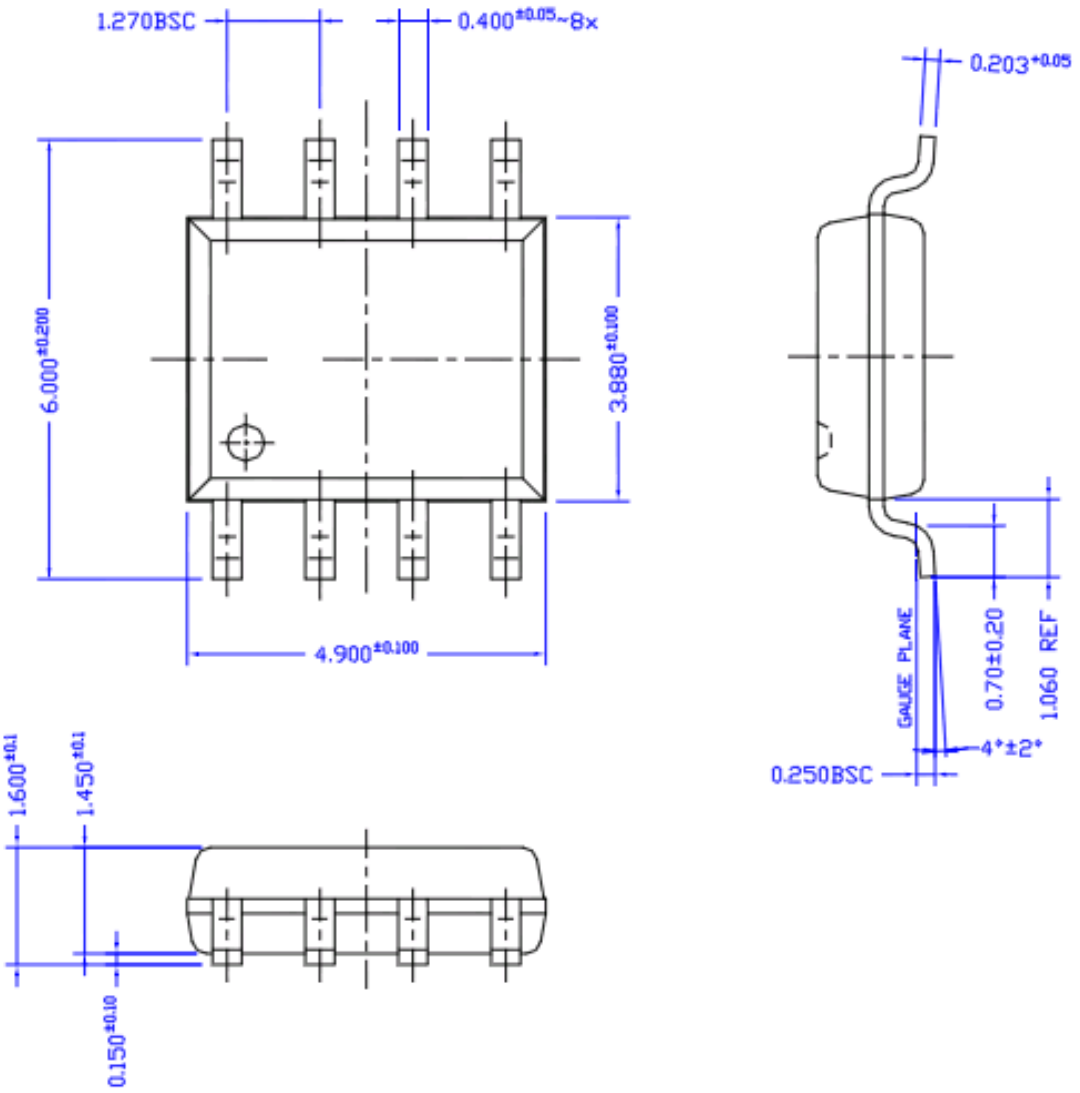
[1] T_J=+25℃ to +150℃
[2] Repetitive rating, pulse width limited by maximum junction temperature.
[3] Pulse width≤380μs;duty cycle≤2%.

Switching Time Test Circuit and Waveforms



Package Dimensions

SOP-8



Published by
ARK Microelectronics Co., Ltd.
No.9, East Zijing Road, High-tech District, Chengdu, P. R. China

Disclaimers

ARK Microelectronics Co., Ltd. reserves the right to make change without notice in order to improve reliability, function or design and to discontinue any product or service without notice. Customers should obtain the latest relevant information before orders and should verify that such information is current and complete. All products are sold subject to ARK Microelectronics Co., Ltd's terms and conditions supplied at the time of order acknowledgement.

ARK Microelectronics Co., Ltd. warrants performance of its hardware products to the specifications at the time of sale, Testing, reliability and quality control are used to the extent ARK Microelectronics Co., Ltd deems necessary to support this warrantee. Except where agreed upon by contractual agreement, testing of all parameters of each product is not necessary performed.

ARK Microelectronics Co., Ltd. does not assume any liability arising from the use of any product or circuit designs described herein. Customers are responsible for their products and applications using ARK Microelectronics Co., Ltd's components. To minimize risk, customers must provide adequate design and operating safeguards.

ARK Microelectronics Co., Ltd. does not warrant or convey any license either expressed or implied under its patent rights, nor the rights of others. Reproduction of information in ARK Microelectronics Co., Ltd's data sheets or data books is permissible only if reproduction is without modification or alteration. Reproduction of this information with any alteration is an unfair and deceptive business practice. ARK Microelectronics Co., Ltd is not responsible or liable for such altered documentation.

Resale of ARK Microelectronics Co., Ltd'sproducts with statements different from or beyond the parameters stated by ARK Microelectronics Co., Ltd. for the product or service voids all express or implied warrantees for the associated ARK Microelectronics Co., Ltd's product or service and is unfair and deceptive business practice. ARK Microelectronics Co., Ltd is not responsible or liable for any such statements.

Life Support Policy:

ARK Microelectronics Co., Ltd's products are not authorized for use as critical components in life devices or systems without the expressed written approval of ARK Microelectronics Co., Ltd.

As used herein:

1. Life support devices or systems are devices or systems which:
   a. are intended for surgical implant into the human body,
   b. support or sustain life,
   c. whose failure to perform when properly used in accordance with instructionsfor used provided in the labeling, can be reasonably expected to result in significantinjury to the user.
2. A critical component is any component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.