



N-CHANNEL POWER MOSFET MEM8N60

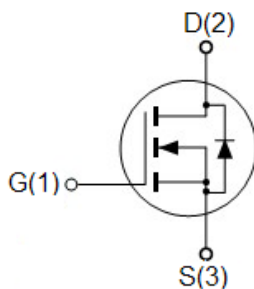
General Description

The MEM8N60 is a high voltage and high current power MOSFET, designed to have better characteristics, such as fast switching time, low gate charge, low on-state resistance and have a high rugged avalanche characteristics. This powerMOSFET is usually used at high speed switching applications in powersupplies, PWM motor controls, high efficient DC to DC converters and bridge circuits.

Features

- 600V, 7.5A
- $R_{DS(ON)}=1.2\Omega@V_{GS}=10V$
- LOW CRSS
- Fast Switching
- Avalanche energy specified
- Package : TO220-F

Pin Configuration



MEM8N60A3G

Maximum Ratings($T_A=25^\circ\text{C}$)

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DSS}	600V	V
Gate-Source Voltage	V_{GSS}	± 30	V
Drain Current	I_D	$T_A=25^\circ\text{C}$	7.5
		$T_A=100^\circ\text{C}$	4.6
Pulsed Drain Current ^{1,2}	I_{DM}	24	A
Total Power Dissipation	$T_A=25^\circ\text{C}$	P_d	50
Operating Temperature Range	T_{Opr}	-55-150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55-150	$^\circ\text{C}$

Thermal Characteristics

Parameter	Symbol	TYP.	MAX.	Unit
Thermal Resistance, Junction-to-Case	R θ JC	2.6	3	°C/W

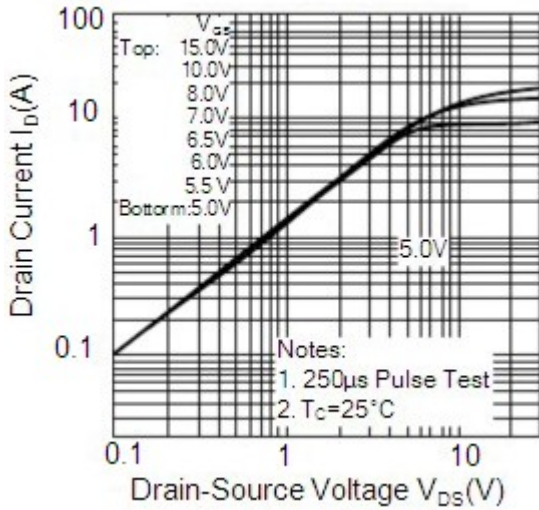
Electrical Characteristics

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250 μ A	600	650	-	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250 μ A	2.0	2.1	4.4	V
Gate-Body Leakage	I _{GSS}	V _{DS} =0V, V _{GS} =30V	-	-	100	nA
		V _{DS} =0V, V _{GS} =-30V	-	-	-100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =600V V _{GS} =0V	-	0.2	20	μ A
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =3.75A	-	0.8	1.2	Ω
Forward Transconductance	g _{FS}	V _{DS} =15V, I _D =3A	-	2	10	S
Drain-Source Diode Forward Continuous Current	I _S	V _{GS} =0V	-	-	7.5	A
Source-drain (diode forward) voltage	V _{SD}	V _{GS} =0V, I _S =7.5A	-	-	1.4	V
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} = 25 V, V _{GS} = 0 V, f = 1 MHz	-	970	-	pF
Output Capacitance	C _{oss}		-	110	-	
Reverse Transfer Capacitance	C _{rss}		-	24	-	
Switching Characteristics						
Turn-On Delay Time	t _{d(on)}	V _{DD} = 300 V, R _G = 25 Ω , V _{GS} = 10V, I _D = 7.5A	-	17	-	ns
Rise Time	t _r		-	60	-	
Turn-Off Delay Time	t _{d(off)}		-	81	-	
Fall-Time	t _f		-	75	-	
Total Gate Charge	Q _g	V _{DS} = 450V, V _{GS} = 10V, I _D = 7.5A	-	28	-	nC
Gate-Source Charge	Q _{gs}		-	4.5	-	
Gate-Drain Charge	Q _{gd}		-	12	-	

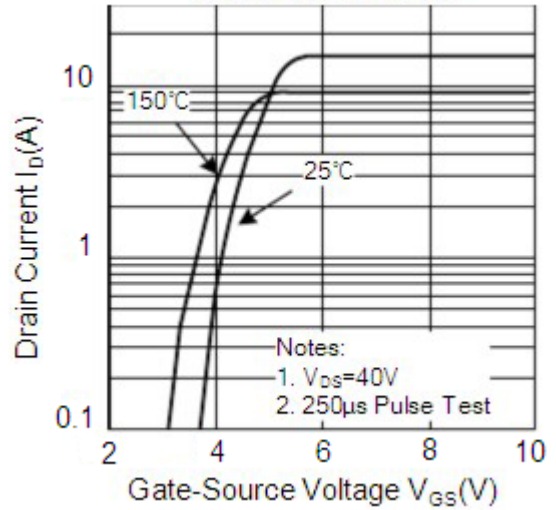
- 1、Repetitive rating, pulse width limited by junction temperature.
- 2、Pulse width <300us , duty cycle <2%.
- 3、I_{SD}≤7.5A di/dt≤200A/us, V_{DD}≤BV_{DSS}, T_J≤150°C.
- 4、L=7.3mH, V_{DD}=50V, I_D=7.5A, R_G=25 Ω , Starting T_J=25°C.

Typical performance characteristics

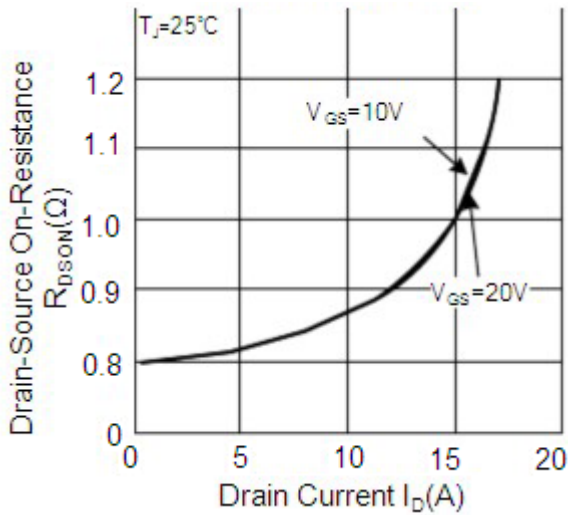
On-Stage characteristics



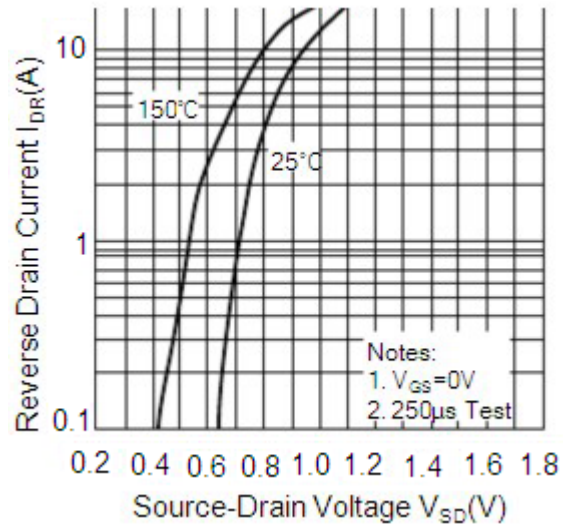
Transfer characteristics



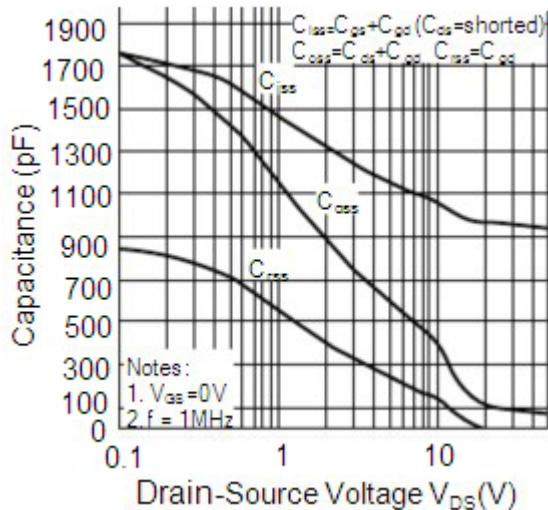
On-Resistance Variation vs. Drain Current and Gate Voltage



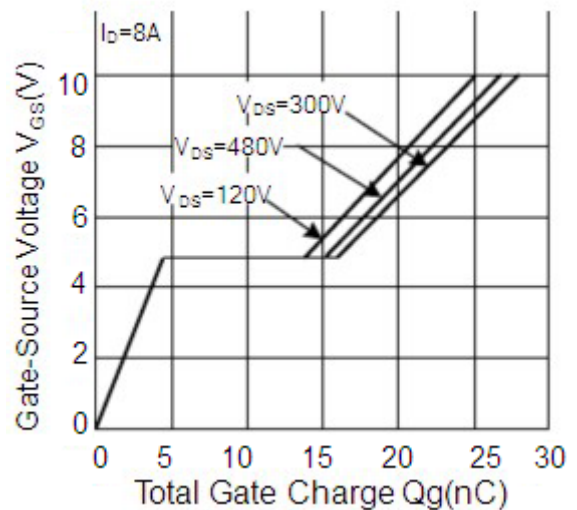
Body Diode forward Voltage vs. Source Current



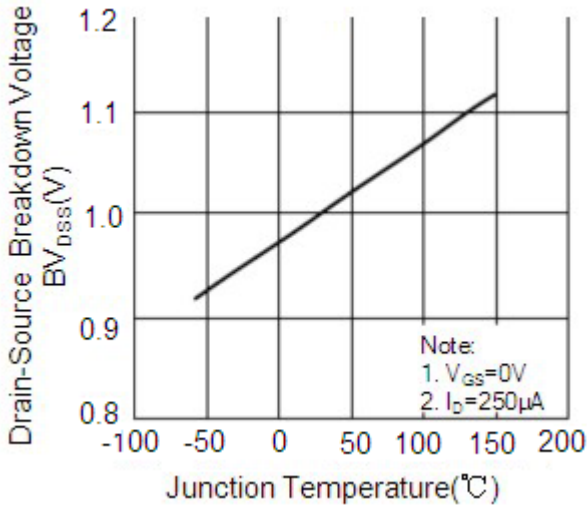
Capacitance characteristics



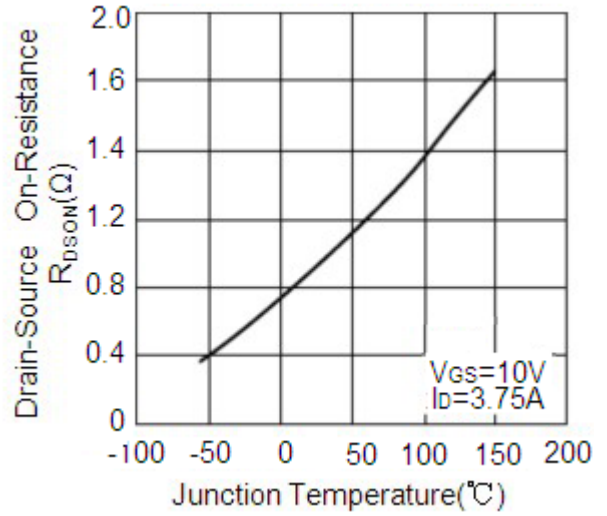
Gate Charge characteristics



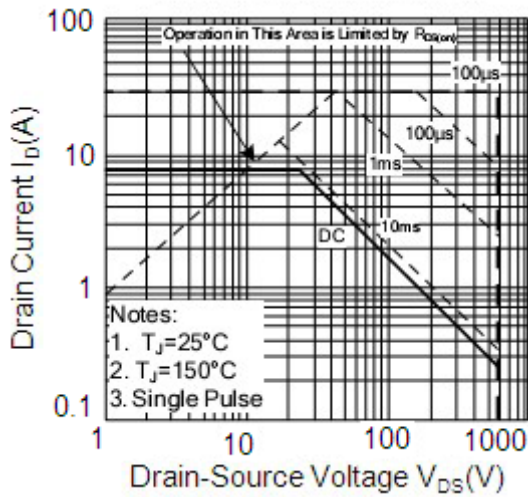
**Breakdown Voltage Variation
Vs. Temperature**



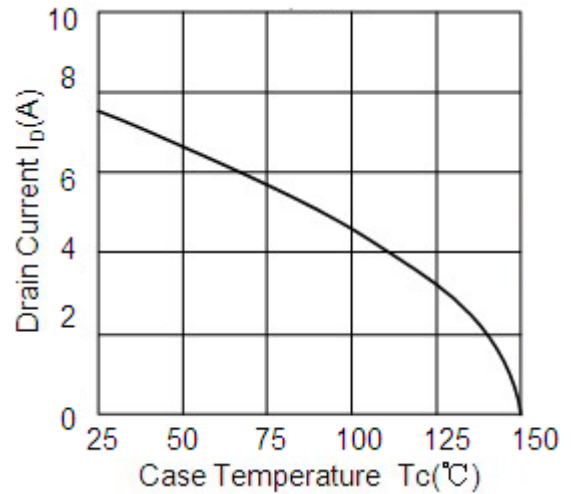
On-Resistance vs. Temperature



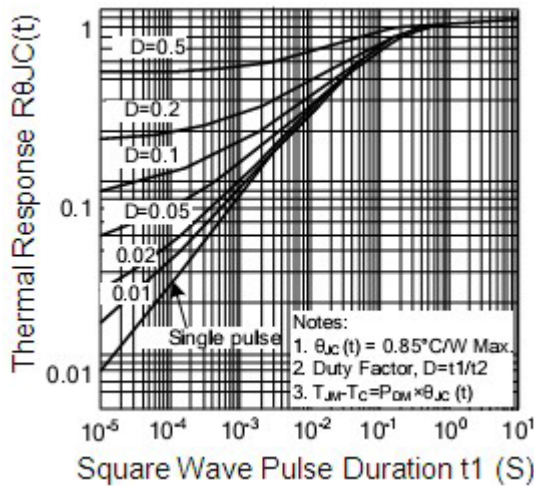
Maximum safe operating area



**Maximum Drain Current vs.
Case Temperature**

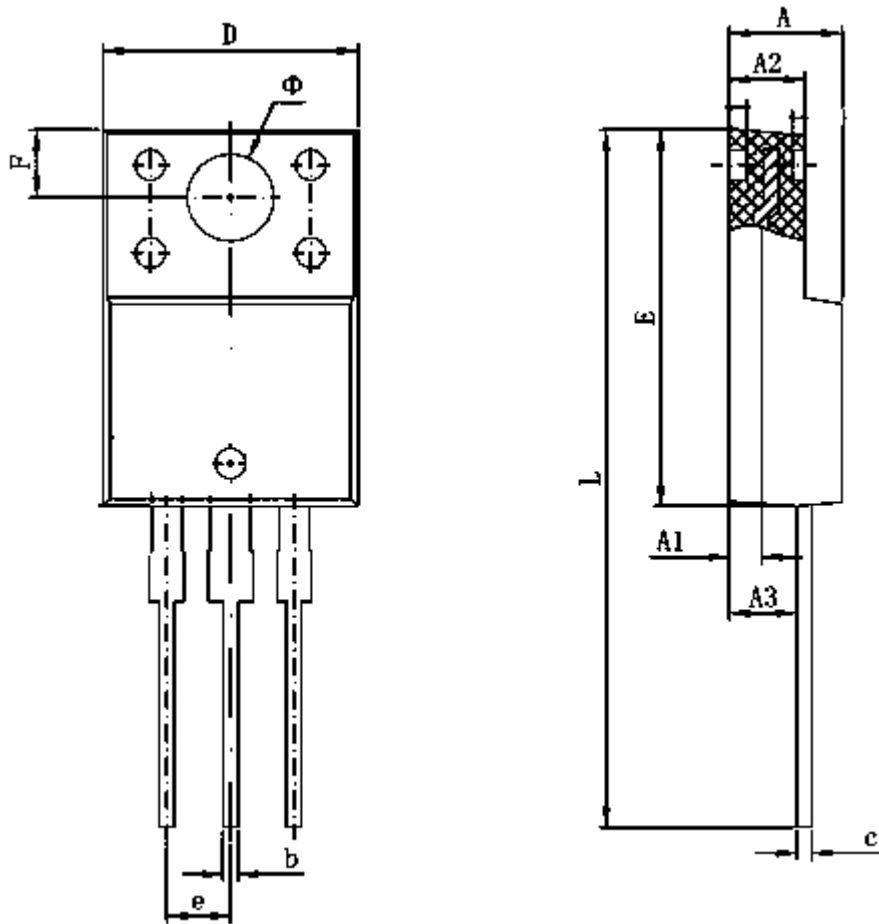


Transient Thermal Response Curve



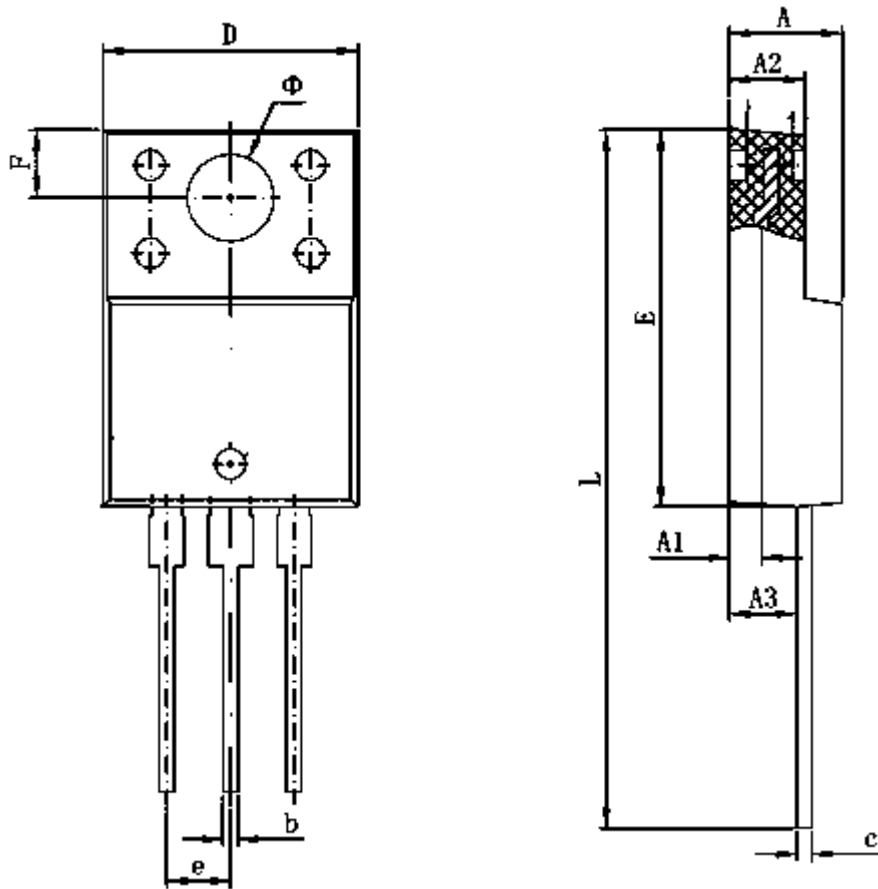
Package Information

- Package Type: TO-220F (A)



DIM	Millimeters		Inches	
	Min	Max	Min	Max
A	4.5	4.9	0.1771	0.1929
A1	0.75	1.05	0.0295	0.0413
A2	2.35	2.75	0.0925	0.1083
A3	2.65	2.85	0.1043	0.1122
b	0.75	0.85	0.0295	0.0334
c	0.45	0.6	0.0177	0.0236
D	10	10.32	0.3937	0.4063
E	15.65	16.05	0.6161	0.6319
e	2.54REF		0.100REF	
F	3.2	3.4	0.1260	0.1338
Φ	3.08	3.28	0.1212	0.1291
L	28.45	29.25	1.1201	1.1516

● Package Type: TO-220F (B)



DIM	Millimeters		Inches	
	Min	Max	Min	Max
A	4.5	4.9	0.1771	0.1929
A1	0.75	1.05	0.0295	0.0413
A2	2.35	2.75	0.0925	0.1083
A3	2.65	2.9	0.1043	0.1142
b	0.75	0.85	0.0295	0.0334
c	0.45	0.6	0.0177	0.0236
D	10	10.32	0.3937	0.4063
E	15.65	16.15	0.6161	0.6358
e	2.54REF		0.100REF	
F	3.2	3.4	0.1260	0.1338
Φ	3.08	3.28	0.1212	0.1291
L	26.2	29.8	1.0315	1.1732

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