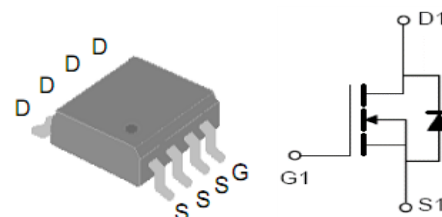


60V/12A N-Channel Advanced Power MOSFET

SOP-8

BVDSS	60	V
ID	12	A
RDSON@VGS=10V	13	mΩ
RDSON@VGS=4.5V	16	mΩ



Features

- Low On-Resistance
- Fast Switching

Applications

- Power switching application
- Hard switched and high frequency circuits
- uninterruptible power supply

Order Information

Product	Package	Marking	Reel
M06N12M	SOP-8	PTS6012	3000PCS

Absolute Maximum Ratings

Symbol	Parameter		Rating	Unit
Common Ratings (TC=25°C Unless Otherwise Noted)				
V _{(BR)DSS}	Drain-Source Breakdown Voltage		60	V
V _{GS}	Gate-Source Voltage		±20	V
T _J	Maximum Junction Temperature		150	°C
T _{STG}	Storage Temperature Range		-55 to 150	°C
I _S	Diode Continuous Forward Current	TA =25°C	12	A
Mounted on Large Heat Sink				
I _{DM}	Pulse Drain Current Tested (Silicon Limit) (Note1)	TA =25°C	50	A
I _D	Continuous Drain current	TA =25°C	12	A
P _D	Maximum Power Dissipation	TA =25°C	2.5	W
R _{θJC}	Thermal Resistance Junction-to- Ambient (Note2)		83.3	°C/W

Note:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, $t \leq 10$ sec.

60V/12A N-Channel Advanced Power MOSFET

Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
Static Electrical Characteristics @ T _J = 25°C (unless otherwise stated)						
V _{(BR)DSS}	Drain- Source Breakdown Voltage	VGS=0V ID=250μA	60	--	--	V
I _{DSS}	Zero Gate Voltage Drain current	VDS=60V,VGS=0V	--	--	1	μA
I _{GSS}	Gate-Body Leakage Current	VGS=±20V,VDS=0V	--	--	±100	nA
V _{GS(TH)}	Gate Threshold Voltage	VDS=VGS,ID=250μA	1	1.6	2.5	V
R _{DS(ON)}	Drain-Source On-State Resistance (Note3)	VGS=10V, ID=10A	--	13	20	mΩ
		VGS=4.5V, ID=5A	--	16	24	
Dynamic Electrical Characteristics @ T _J = 25°C (unless otherwise stated) (Note4)						
C _{iss}	Input Capacitance	VDS=30V, VGS=0V, F=1MHz	--	2800	--	pF
C _{oss}	Output Capacitance		--	116	--	pF
C _{rss}	Reverse Transfer Capacitance		--	107	--	pF
Q _g	Total Gate Charge	VDS=30V, ID=10A, VGS=10V	--	50	--	nC
Q _{gs}	Gate-Source Charge		--	6	--	nC
Q _{gd}	Gate-Drain Charge		--	15	--	nC
Switching Characteristics (Note4)						
t _{d(on)}	Turn-on Delay Time	VDD=30V, ID=10A , RG=3Ω, VGS=10V	--	7.4	--	nS
t _r	Turn-on Rise Time		--	5.1	--	nS
t _{d(off)}	Turn-off Delay Time		--	28.2	--	nS
t _f	Turn-off Fall Time		--	5.5	--	nS
Source- Drain Diode Characteristics@ T _J = 25°C (unless otherwise stated)						
V _{SD}	Forward on voltage	ISD=6A,VGS=0V	--	--	1.2	V

Note:

3. Pulse Test: pulse width ≤ 300 us, duty cycle ≤ 2%.
4. Guranteed by design, not subject to production testing.

60V/12A N-Channel Advanced Power MOSFET

Typical Characteristics

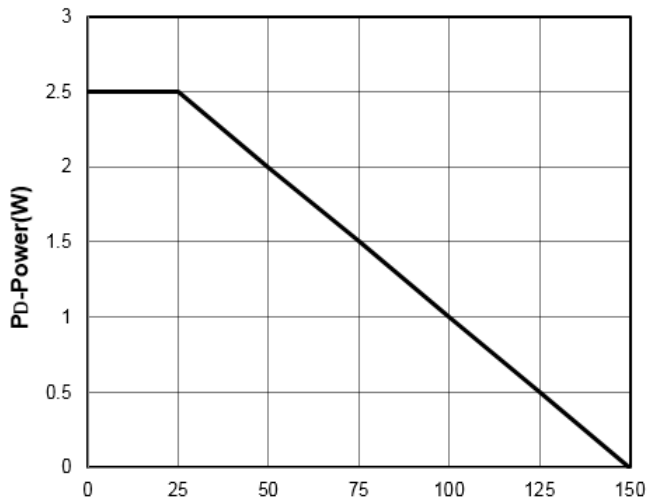


Figure1: Tj Junction Temperature (°C)

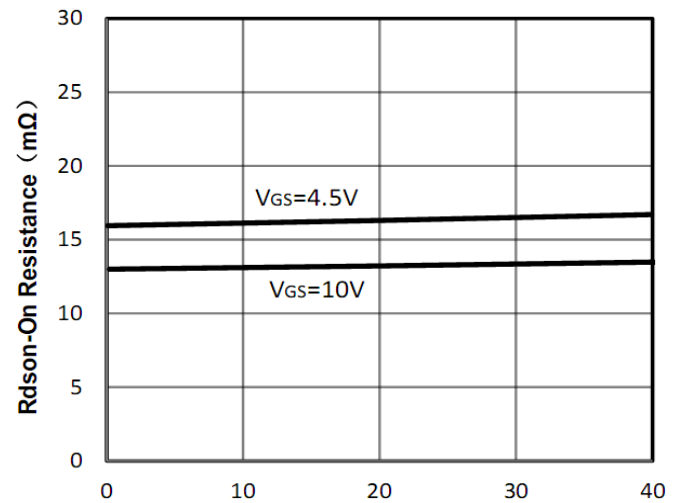


Figure2: Id Drain Current (A)

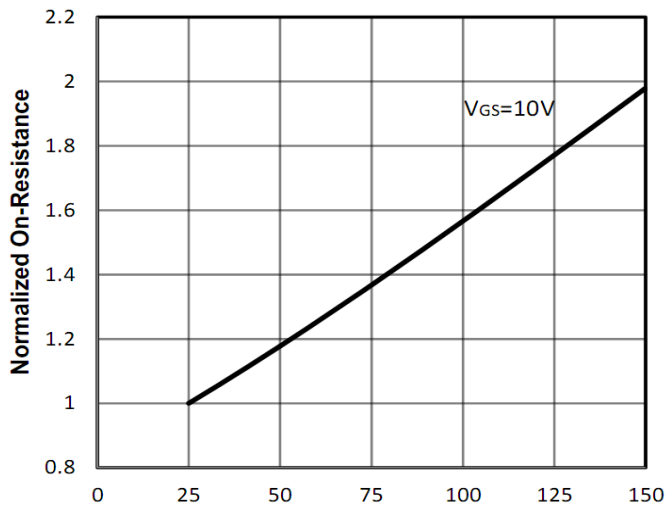


Figure3: Tj Junction Temperature (°C)

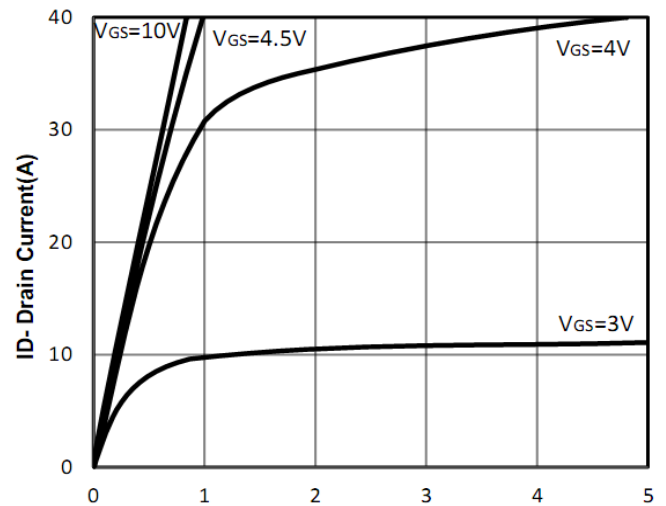


Figure4: Vds Drain-Source Voltage (V)

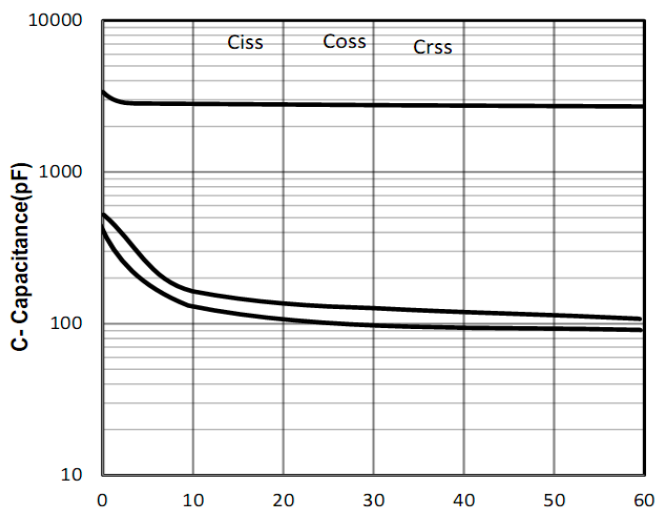


Figure5: Vds Drain -Source Voltage (V)

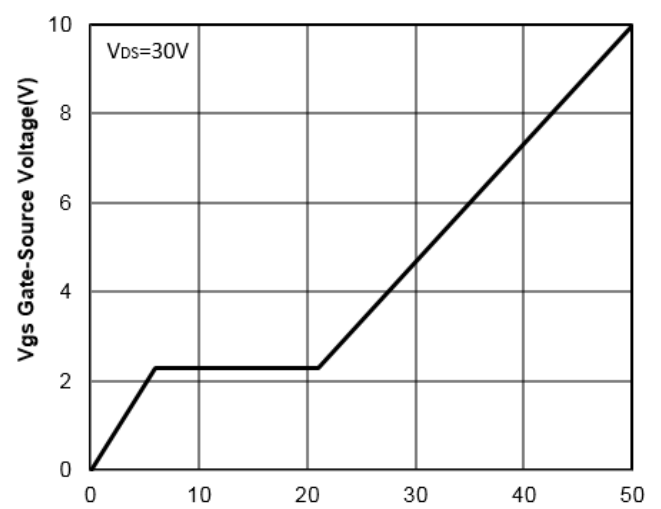


Figure6: Qg Gate Charge (nC)

60V/12A N-Channel Advanced Power MOSFET

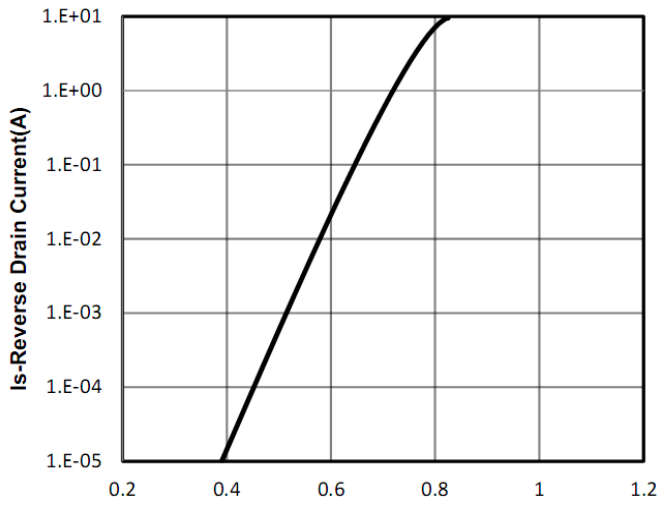


Figure7: Vsd Source-Drain Voltage (V)

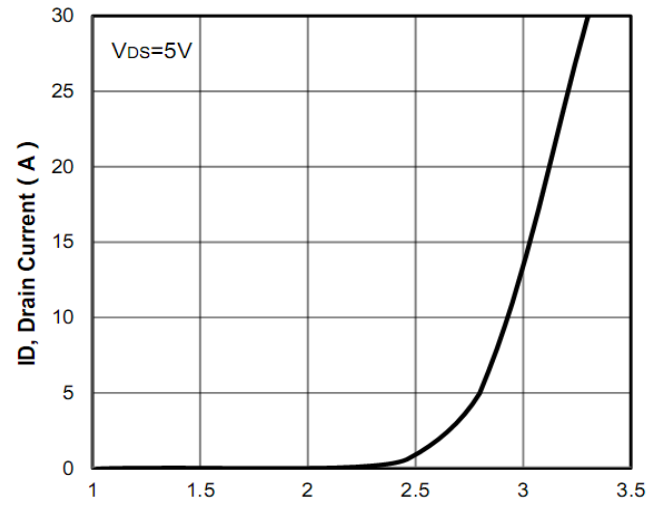


Figure8: Vgs Gate-Source Voltage (V)

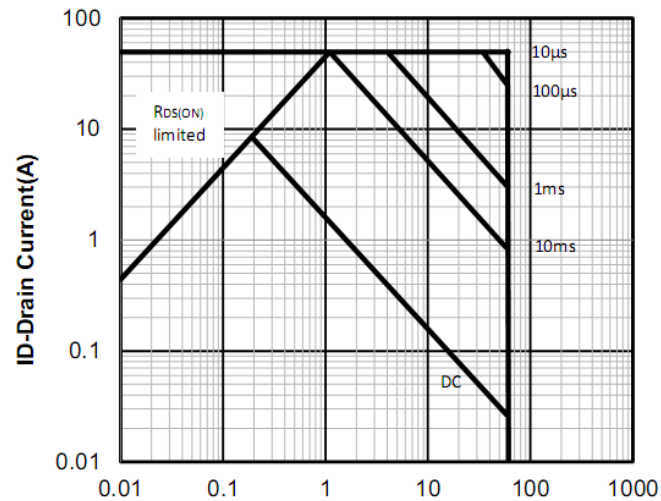


Figure9: VDS Drain -Source Voltage (V)

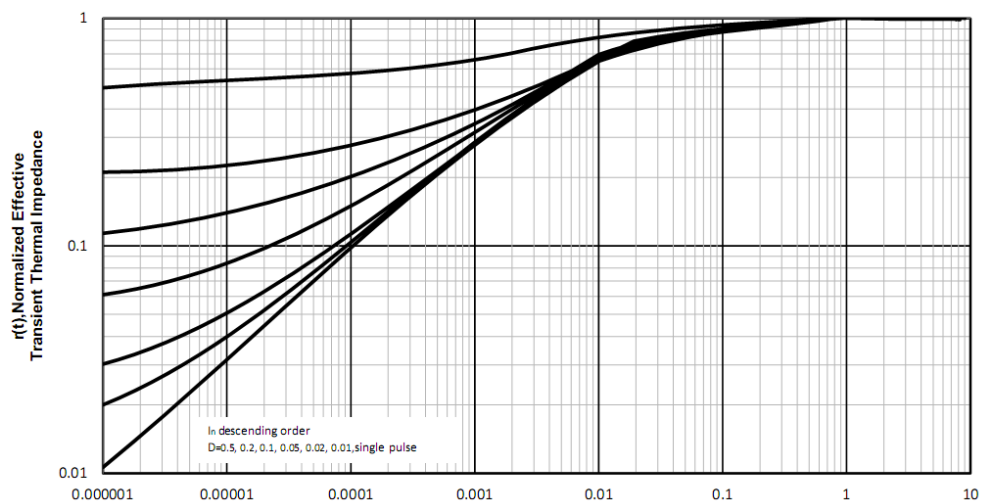


Figure10: Square Wave Pulse Duration (sec)

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Test Circuit and Waveform:

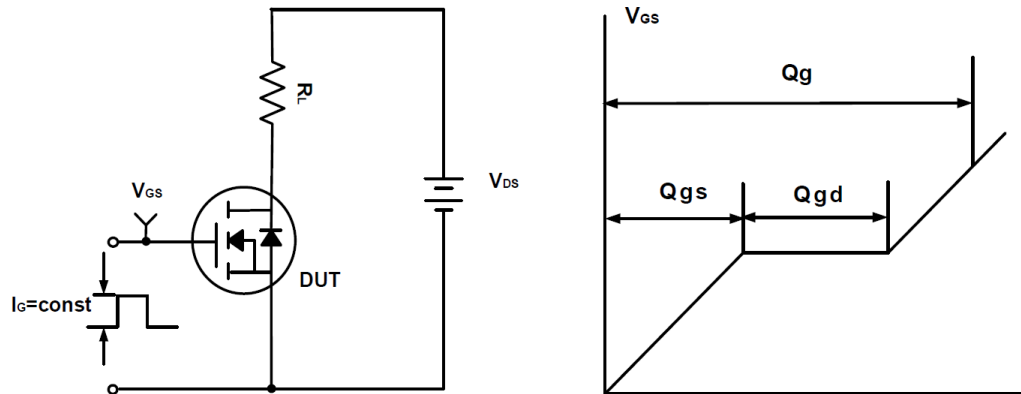


Figure A Gate Charge Test Circuit & Waveforms

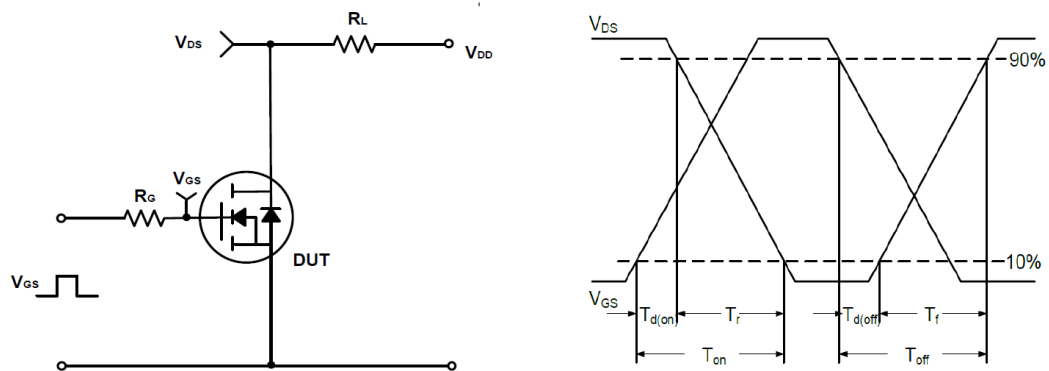
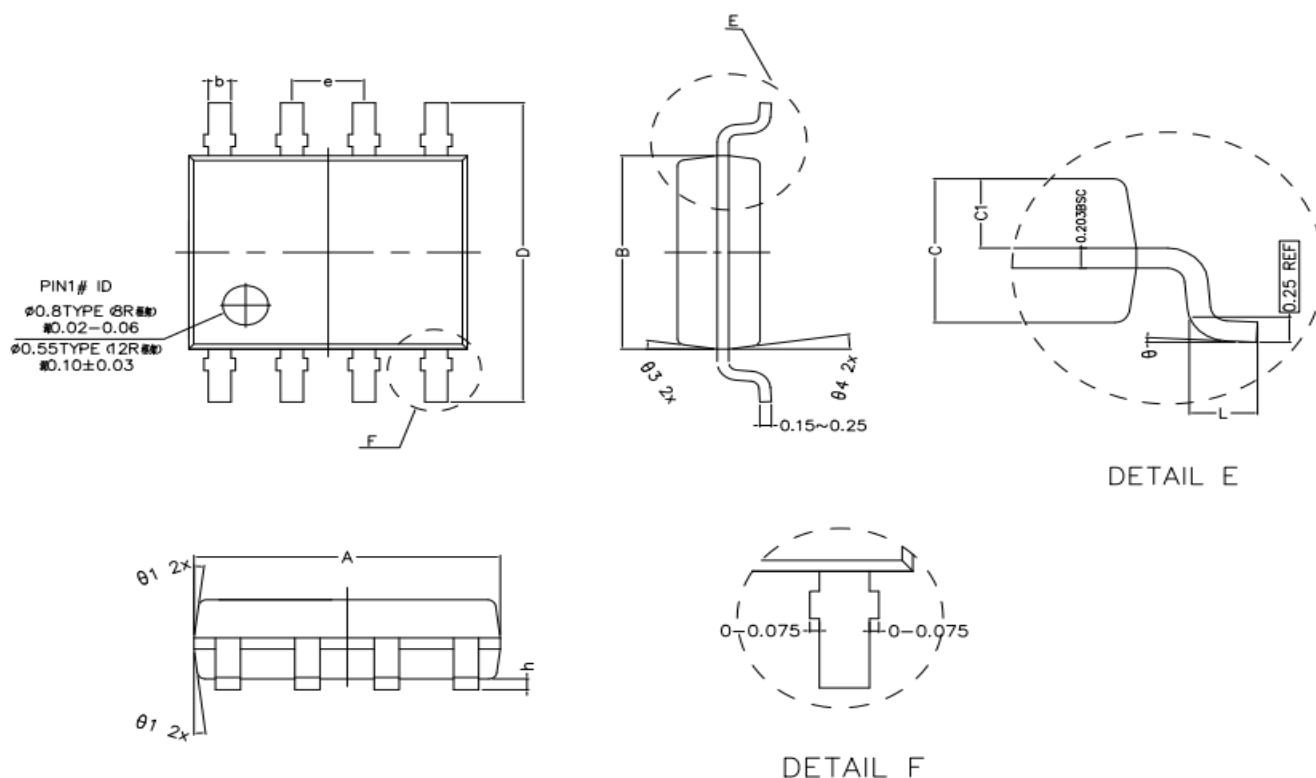


Figure B Switching Test Circuit & Waveforms

60V/12A N-Channel Advanced Power MOSFET

SOP-8 Package Outline Dimensions (Units: mm)



COMMON DIMENSIONS (UNITS OF MEASURE IS mm)			
	MIN	NORMAL	MAX
A	4.800	4.900	5.000
B	3.800	3.900	4.000
C	1.350	1.450	1.550
C1	0.650	0.700	0.750
D	5.900	6.100	6.300
L	0.500	0.600	0.700
b	0.350	0.400	0.450
h	0.050	0.150	0.250
e	1.270TYPE		
θ_1	7° TYPE(8R) 12° TYPE(12R)		
θ_2	7° TYPE(8R) 10° TYPE(12R)		
θ_3	8° TYPE(8R) 12° TYPE(12R)		
θ_4	8° TYPE(8R) 10° TYPE(12R)		
θ	0° ~ 8°		