

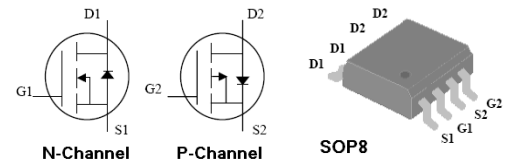
**N And P-Channel Enhancement Mode Power MOSFET****Features**

- Low $R_{DS(on)}$ @ $V_{GS}=5V$
- 5V Logic Level Control
- N+P Dual Channel SOP8 Package
- Pb-Free, RoHS Compliant

Applications

- High Side Load Switch
- Battery Switch
- Optimized for Power Management Applications for Portable Products, such as wireless charger, Media Tablets, PMP, DSC, GPS, and Others

Key Items	NMOS	PMOS	Unit
BVDSS	40	-40	V
ID	8	-7	A
RDSOn1	14	28	mΩ
RDSOn2	19	33	mΩ

**Order Information**

Product	Package	Marking	Packing
PTS4614	SOP-8	PTS4614	3000PCS/Reel

Absolute Maximum Ratings

Symbol	Parameter		Rating		Unit
			NMOS	PMOS	
Common Ratings (T _c =25°C Unless Otherwise Noted)					
V _{GS}	Gate-Source Voltage		±20	±20	V
V _{(BR)DSS}	Drain-Source Breakdown Voltage		40	-40	V
T _J	Maximum Junction Temperature		150		°C
T _{STG}	Storage Temperature Range		-50 to 150		°C
I _S	Diode Continuous Forward Current ^①	T _C =25°C	8	-7	A
Mounted on Large Heat Sink					
I _{DM}	Pulse Drain Current Tested ^②	T _C =25°C	32	-28	A
I _D	Continuous Drain Current(V _{GS} =10V)	T _C =25°C	8	-7.5	A
		T _C =100°C	5.5	-5	
P _D	Maximum Power Dissipation	T _C =25°C	2		W
R _{θJA}	Thermal Resistance Junction-Ambient		62.5		°C/W



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N-Channel

Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V I _D =250μA	40	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current (Tc=25°C)	V _{DS} =40V,V _{GS} =0V	--	--	1	μA
	Zero Gate Voltage Drain Current (Tc=125°C)	V _{DS} =40V,V _{GS} =0V	--	--	100	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±20V,V _{DS} =0V	--	--	±100	nA
V _{GS(TH)}	Gate Threshold Voltage	V _{DS} =V _{GS} ,I _D =250μA	1.0	2.0	3.0	V
R _{DS(ON)}	Drain-Source On-State Resistance	V _{GS} =10V, I _D =7A	--	14	20	mΩ
R _{DS(ON)}	Drain-Source On-State Resistance	V _{GS} =5V, I _D =3.5A	--	18	30	mΩ
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
C _{iss}	Input Capacitance	V _{DS} =20V,V _{GS} =0V, f=1MHz	--	450	--	pF
C _{oss}	Output Capacitance		--	105	--	pF
C _{rss}	Reverse Transfer Capacitance		--	10	--	pF
Q _g	Total Gate Charge	V _{DS} =20V,I _D =4A, V _{GS} =4.5V	--	12.5	--	nC
Q _{gs}	GateSource Charge		--	3.3	--	nC
Q _{gd}	GateDrain Charge		--	3.2	--	nC
Switching Characteristics						
t _{d(on)}	Turnon Delay Time	V _{DD} =20V, I _D =3A, R _G =3.3Ω, V _{GS} =10V	--	5	--	ns
t _r	Turnon Rise Time		--	3.2	--	ns
t _{d(off)}	TurnOff Delay Time		-	15	--	ns
t _f	TurnOff Fall Time		--	2.1	--	ns
Source Drain Diode Characteristics						
I _{SD}	Sourcedrain current(Body Diode) ①	T _c =25°C	.25	--	--	A
V _{SD}	Forward on voltage	T _j =25°C,I _{SD} =4A, V _{GS} =0V	--	0.82	1.2	V

Notes:

- ① Pulse test ; Pulse width≤300μs, duty cycle≤2%.
 ② Pulse width limited by maximum allowable junction temperature



N And P-Channel Enhancement Mode Power MOSFET

P-Channel

Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V I _D =-250μA	-40	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current (T _c =25°C)	V _{DS} =-40V, V _{GS} =0V	--	--	1	μA
	Zero Gate Voltage Drain Current (T _c =125°C)	V _{DS} =-40V, V _{GS} =0V	--	--	100	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±20V, V _{DS} =0V	--	--	±100	nA
V _{GS(TH)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250μA	-1.0	-2.0	-3.0	V
R _{DS(ON)}	Drain-Source On-State Resistance	V _{GS} =-10V, I _D =-7A	--	28	35	mΩ
R _{DS(ON)}	Drain-Source On-State Resistance	V _{GS} =-5V, I _D =-3A	--	33	45	mΩ
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
C _{iss}	Input Capacitance	V _{DS} =-20V, V _{GS} =0V, f=1MHz	--	550	--	pF
C _{oss}	Output Capacitance		--	110	--	pF
C _{rss}	Reverse Transfer Capacitance		--	55	--	pF
Q _g	Total Gate Charge	V _{DS} =-20V, I _D =-3A, V _{GS} =-4.5V	--	13	--	nC
Q _{gs}	Gate-Source Charge		--	4	--	nC
Q _{gd}	Gate-Drain Charge		--	3	--	nC
Switching Characteristics						
t _{d(on)}	Turn-on Delay Time	V _{DD} =-20V, I _D =-6A, R _G =3.3Ω, V _{GS} =-4.5V	--	8	--	ns
t _r	Turn-on Rise Time		--	5	--	nS
t _{d(off)}	Turn-Off Delay Time		--	22	--	nS
t _f	Turn-Off Fall Time		--	8.5	--	nS
Source- Drain Diode Characteristics						
I _{SD}	Source-drain current(Body Diode)	T _c =25°C	-3	--		A
V _{SD}	Forward on voltage	T _j =25°C, I _{SD} =-4A V _{GS} =0V	--	-0.83	-1.2	V

Notes:

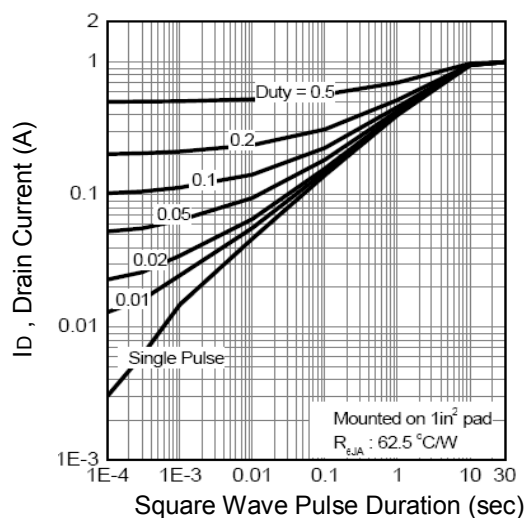
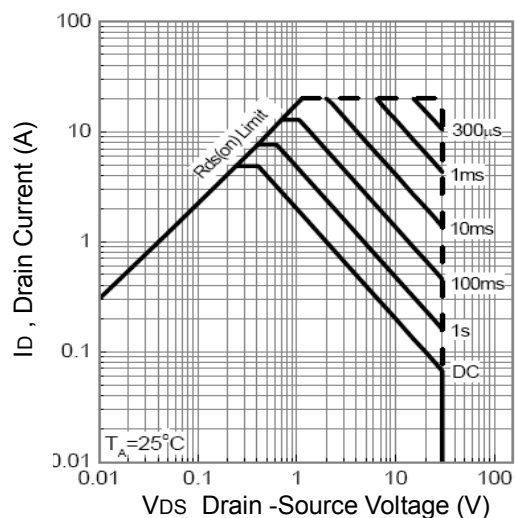
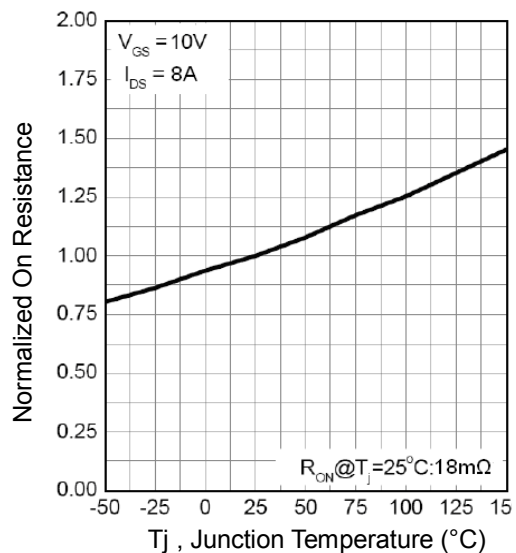
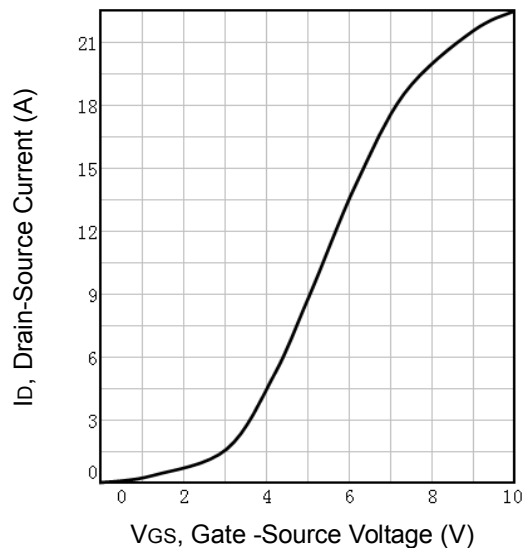
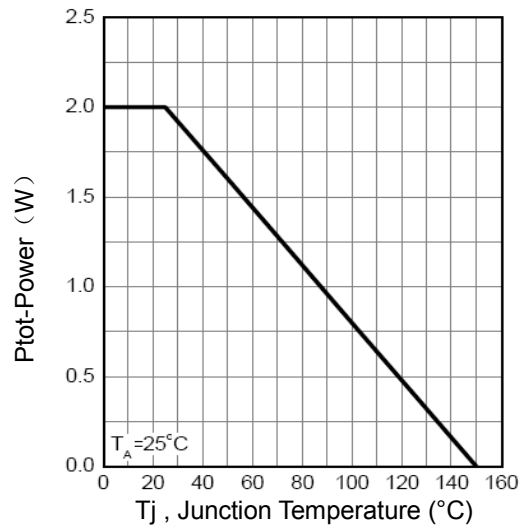
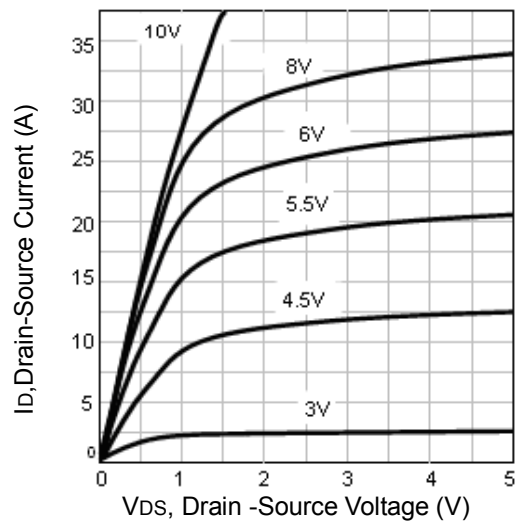
① Pulse test ; Pulse width≤300μs, duty cycle≤2%.

② Pulse width limited by maximum allowable junction temperature.



N And P-Channel Enhancement Mode Power MOSFET

N-Channel Typical Characteristics



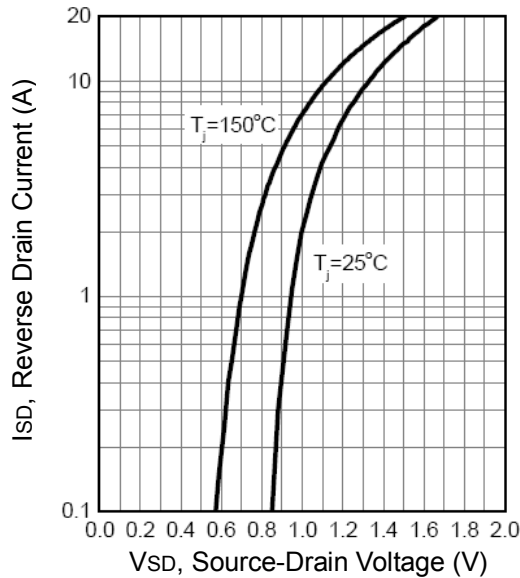
N-Channel Typical Characteristics


Fig7. Typical Source-Drain Diode Forward Voltage

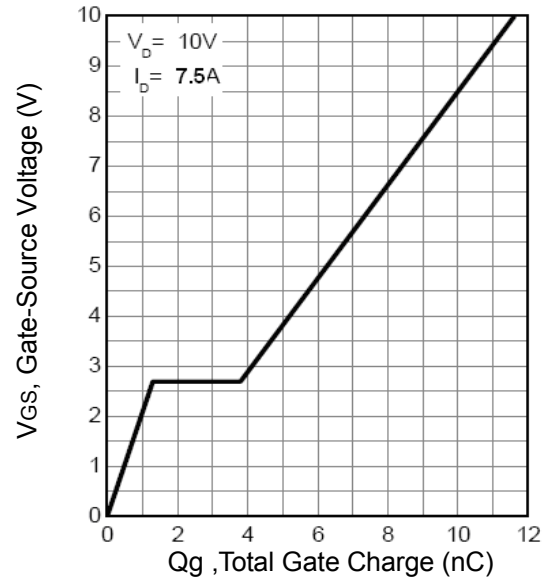


Fig8. Typical Gate Charge Vs. Gate-Source Voltage

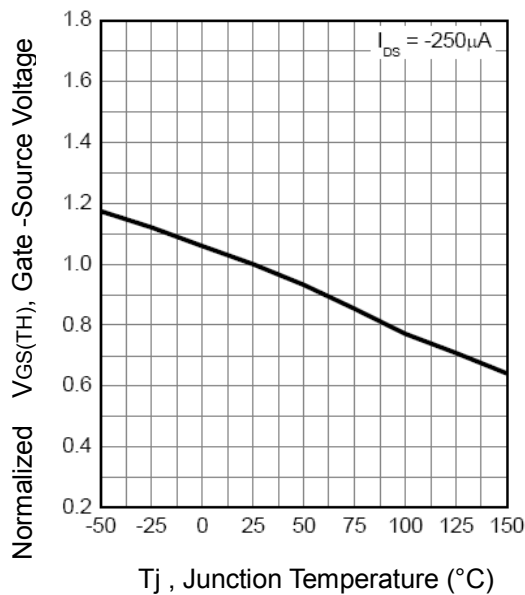


Fig9. Threshold Voltage Vs. Temperature

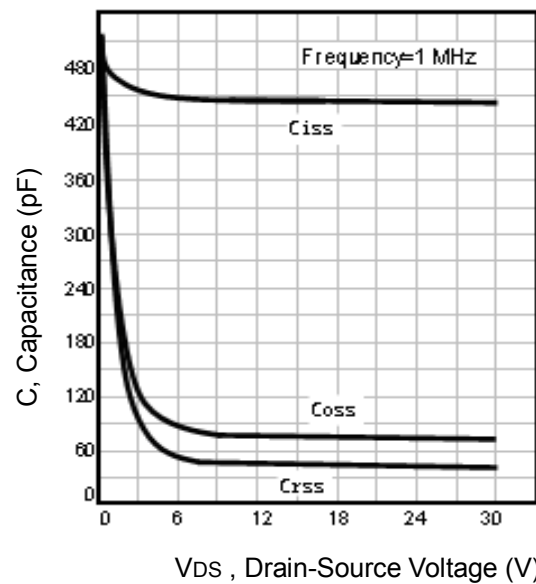


Fig10. Typical Capacitance Vs. Drain-Source Voltage

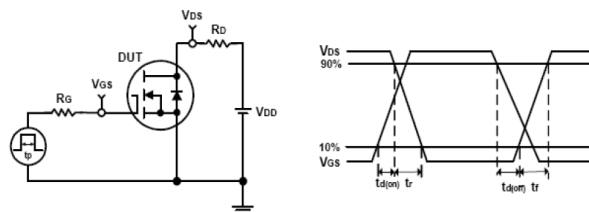


Fig11. Switching Time Test Circuit and waveforms



N And P-Channel Enhancement Mode Power MOSFET

P-Channel Typical Characteristics

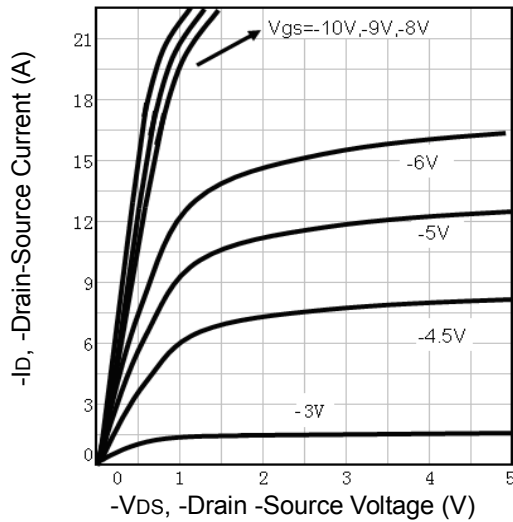


Fig1. Typical Output Characteristics

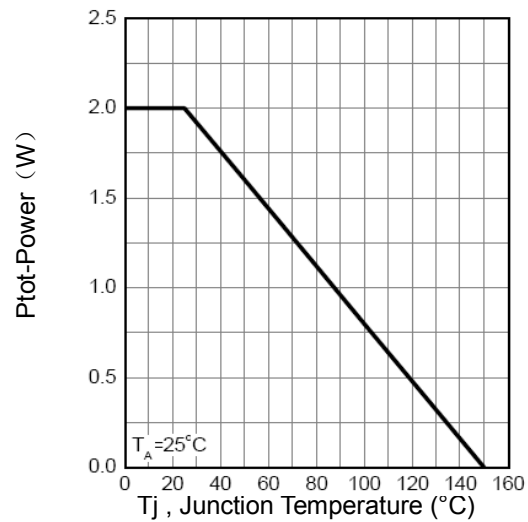


Fig2. Power Dissipation

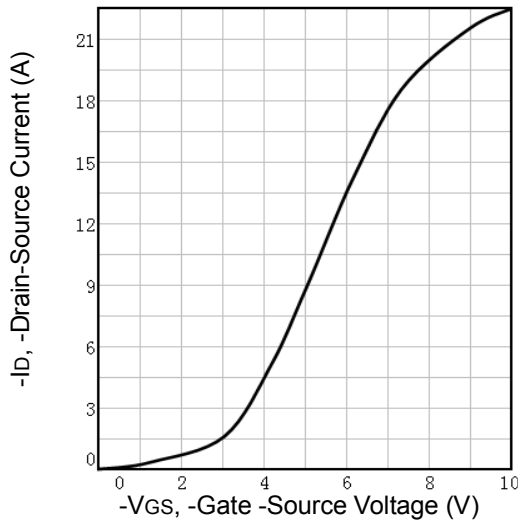


Fig3. Typical Transfer Characteristics

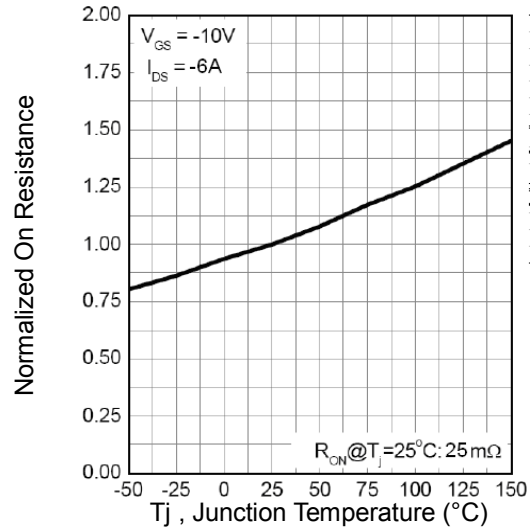


Fig4. Normalized On-Resistance Vs. Temperature

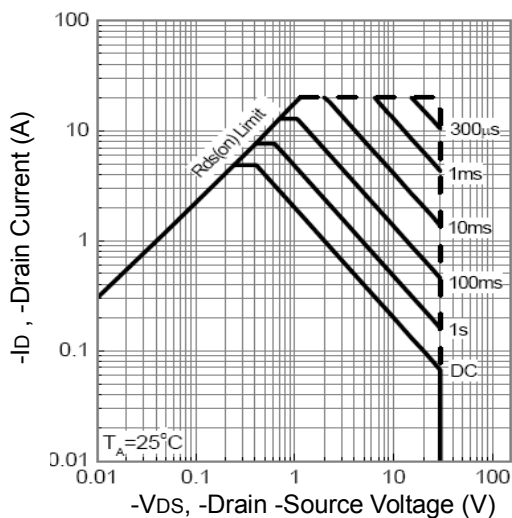


Fig5. Maximum Safe Operating Area

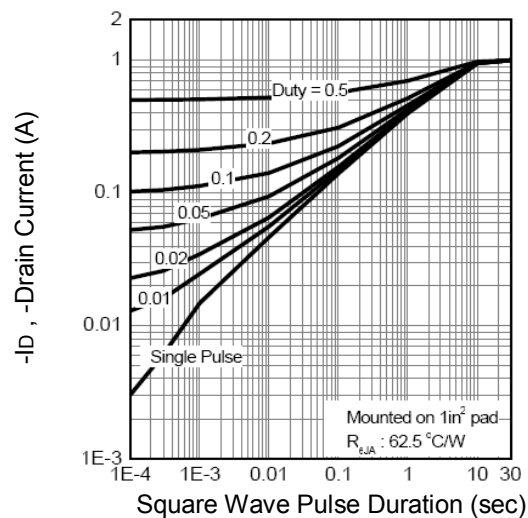


Fig6. Thermal Transient Impedance

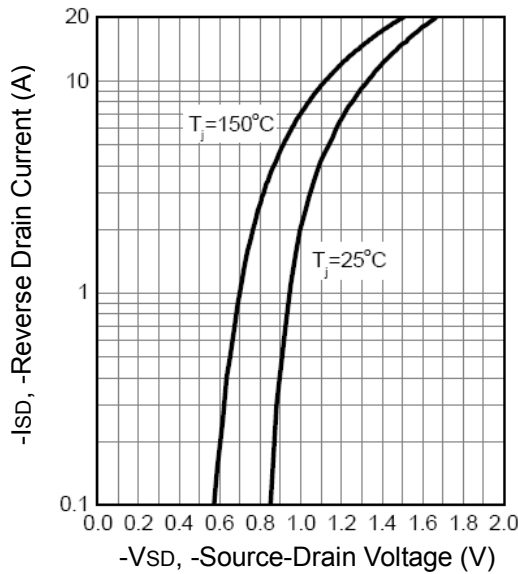
P-Channel Typical Characteristics


Fig7. Typical Source-Drain Diode Forward Voltage

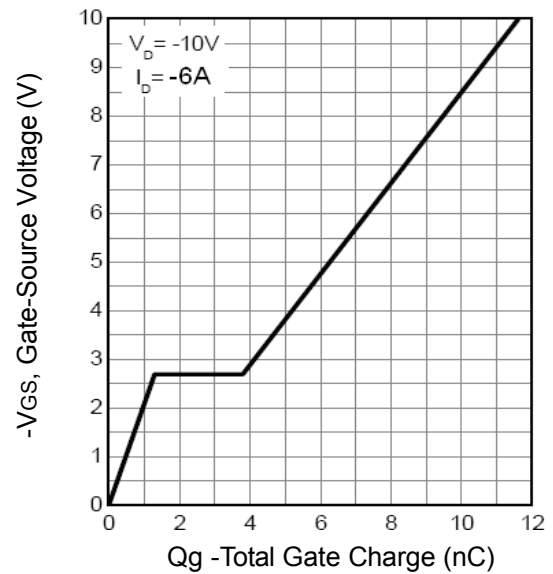


Fig8. Typical Gate Charge Vs. Gate-Source Voltage

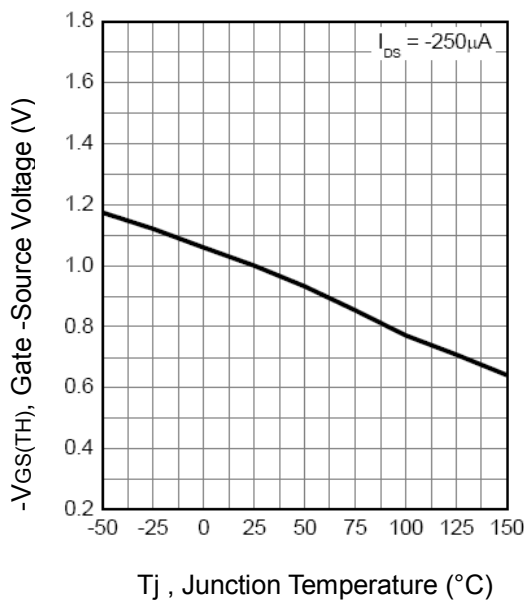


Fig9. Threshold Voltage Vs. Temperature

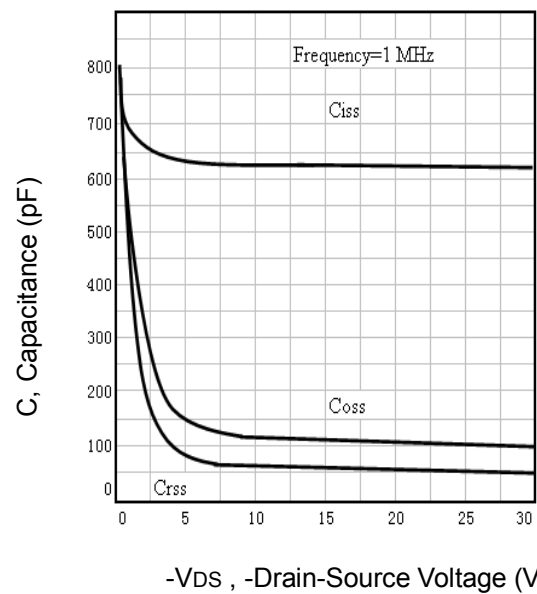


Fig10. Typical Capacitance Vs. Drain-Source Voltage

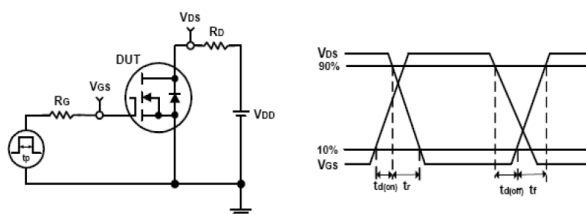
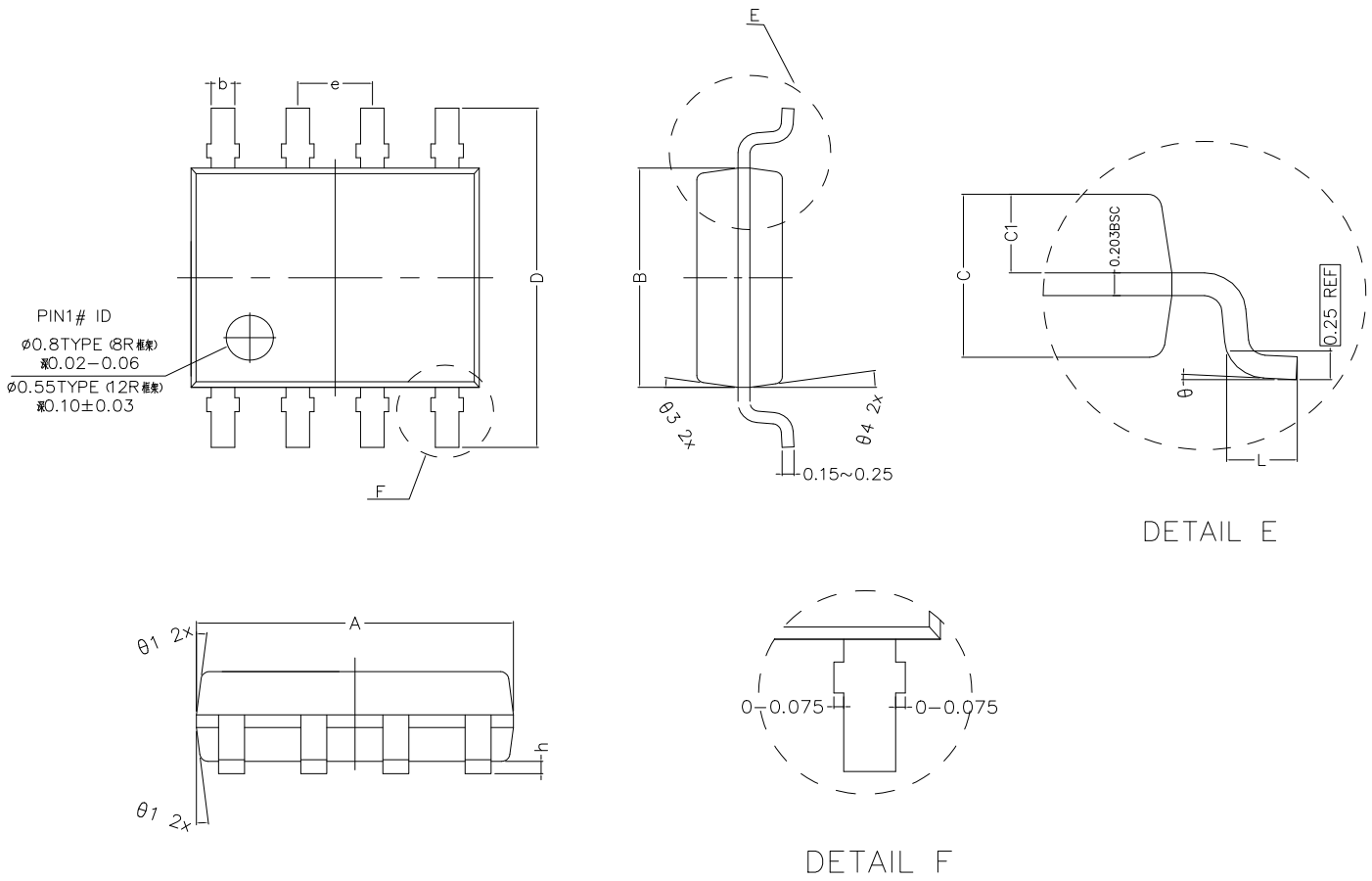


Fig11. Switching Time Test Circuit and waveforms

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°		