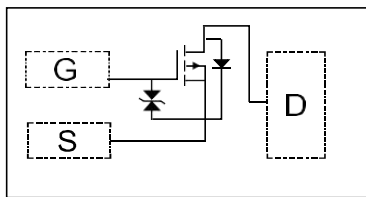


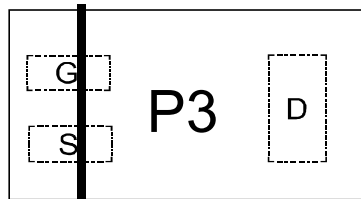
**Description**

The MOSFET provide the best combination of fast switching, low on-resistance and cost-effectiveness.

MOSFET Product Summary		
V <sub>DS</sub> (V)	R <sub>DS(on)</sub> ( Ω )	I <sub>D</sub> (mA)
-20	0.75@ V <sub>ThS</sub> =-4.5V	-300
	0.9@ V <sub>ThS</sub> =-2.5V	
	1.5@ V <sub>ThS</sub> =-1.8V	



**Circuit Diagram**



**Marking (Top View)**

**Absolute maximum rating@25°C**

Parameter		Symbol	Value	Units
Drain-Source Voltage		V <sub>DS</sub>	-20	V
Thate-Source Voltage		V <sub>ThS</sub>	±10	V
Continuous Drain Curren	Continuous	I <sub>D</sub>	-300	mA
	Pulsed	I <sub>DP</sub>	-800	
Source current(Body diode)	Continuous	I <sub>S</sub>	-100	mA
	Pulsed	I <sub>SP</sub>	-800	
Total power dissipation		P <sub>D</sub>	150	mW
Channel temperature		T <sub>J</sub>	150	°C
Range of storage temperature		T <sub>STTh</sub>	-55 to +150	°C

**Thermal resistance**

Parameter	Symbol	Limits	Units
Channel to ambient	Rth(ch-a)	833	°C/W

### Electrical characteristics per line@25°C( unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Drain-Source Breakdown Voltage	$BV_{DSS}$	$I_D = -1mA, V_{ThS} = 0V$	-20		-	V
Zero Thate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -20V, V_{ThS} = 0V$	-	-	-1	$\mu A$
Thate-Body Leakage Current	$I_{ThSS}$	$V_{DS} = 0V, V_{ThS} = \pm 8V$	-	-	$\pm 10$	$\mu A$
Thate Threshold Voltage	$V_{ThS(th)}$	$V_{DS} = -10V, I_D = -100\mu A$	-0.5	-	-1.1	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{ThS} = -4.5V, I_D = -300mA$	-	0.75	1.0	$\Omega$
		$V_{ThS} = -2.5V, I_D = -200mA$	-	0.9	1.5	$\Omega$
		$V_{ThS} = -1.8V, I_D = -100mA$		1.5	2.2	$\Omega$
Forward transfer admittance	$ Y_{fs} $	$V_{DS} = -10V, I_D = -200mA$	0.3			s
Input Capacitance	$C_{ISS}$	$V_{ThS} = 0V, V_{DS} = -10V,$ $f = 1MHz$	-	110		pF
Output Capacitance	$C_{OSS}$		-	9		pF
Reverse Transfer Capacitance	$C_{RSS}$		-	5		pF
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -10V, V_{ThS} = 4.5V,$ $R_{Th} = 10\Omega, R_L = 100\Omega$ $I_D = -100mA$	-	5		ns
Turn-Off Delay Time	$t_{d(off)}$		-	15		ns
Turn-On Rise Time	$t_r$		-	4		ns
Turn-On Fall Time	$t_f$		-	13		ns
Total Thate Charge	$Q_g$	$V_{DD} = -10V, V_{ThS} = 4.5V,$ $I_D = -200mA$ $R_{Th} = 10\Omega, R_L = 50\Omega$		1.4		nC
Thate-Source Charge	$Q_{gs}$			0.3		nC
Thate-Drain Charge	$Q_{gd}$			0.3		nC
Drain-Source Diode Forward Voltage	$V_{SD}$	$V_{ThS} = 0V, I_S = -200mA$		-	-1.2	V

Typical Characteristics

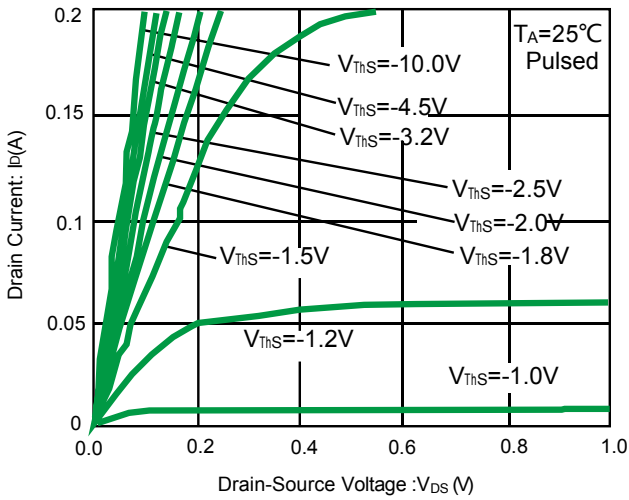


Fig 1. Typical output characteristics(I)

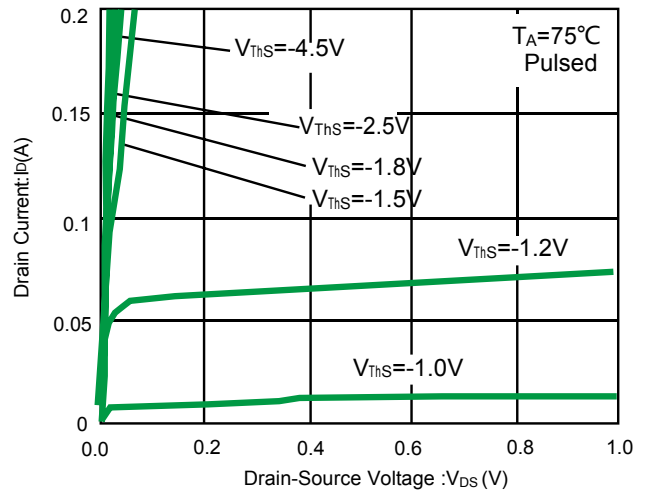


Fig 2. Typical output characteristics(II)

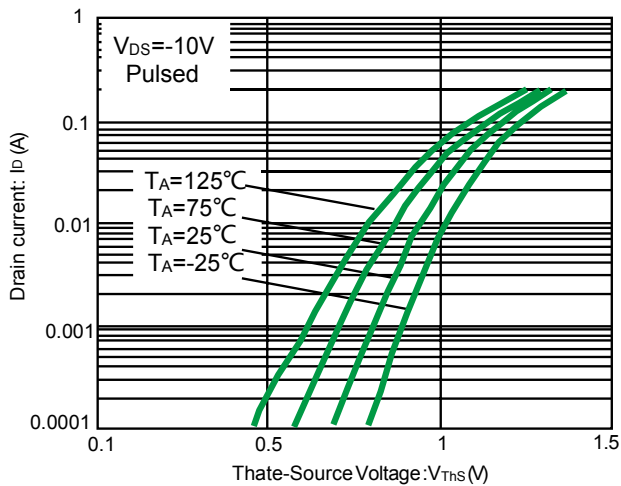


Fig 3. Typical transfer characteristics

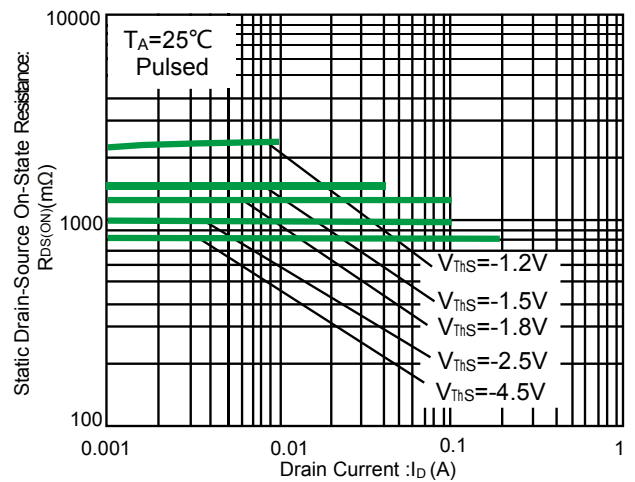


Fig 4. Static drain-source on-state resistance vs drain current(I)

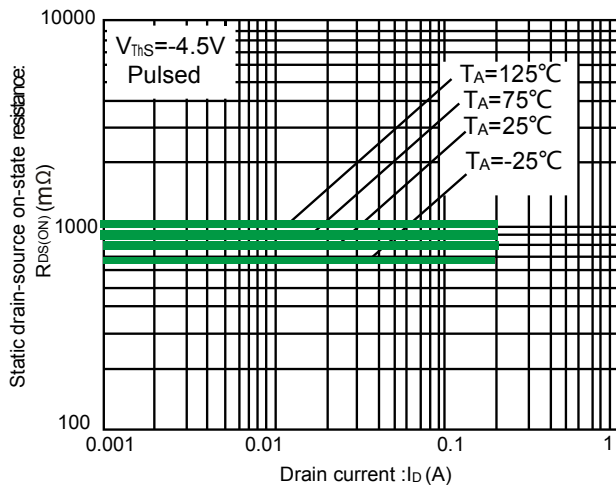


Fig 5. Static drain-source on-state resistance vs. drain current(II)

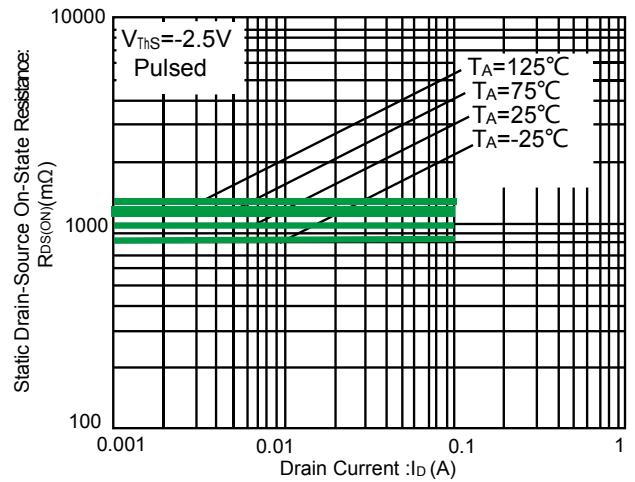


Fig 6. Static drain-source on-state resistance vs drain current(III)

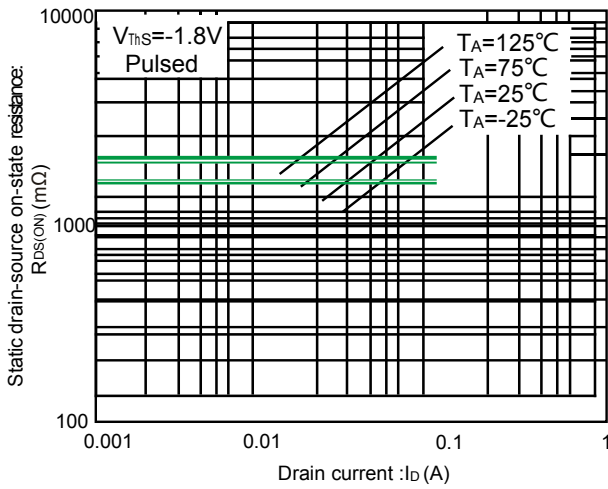


Fig 7. Static drain-source on-state resistance vs. current (IV)

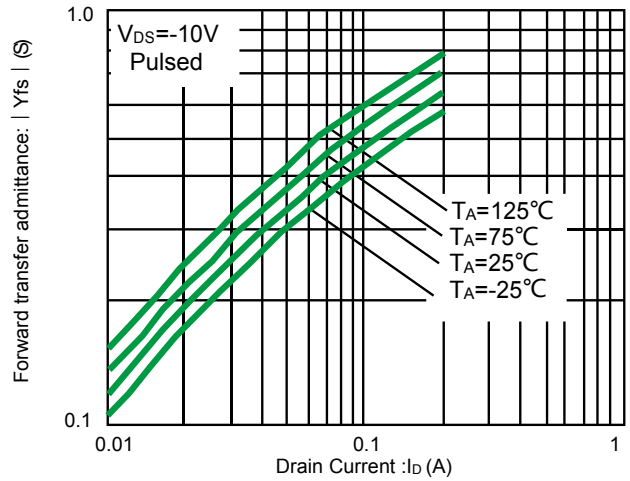


Fig 8. Forward transfer admittance vs. drain current drain

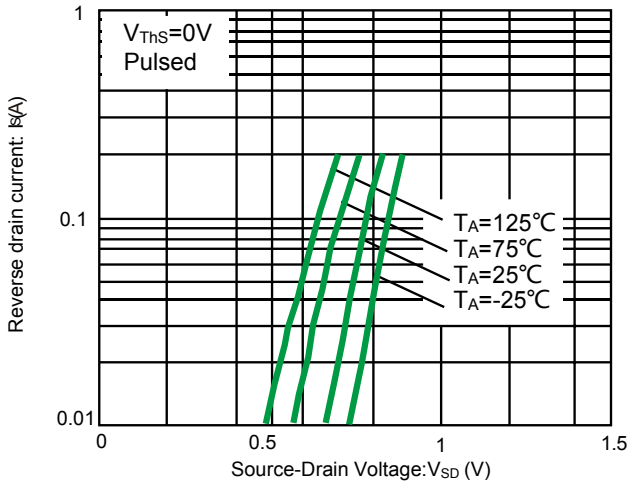


Fig 9. Reverse drain current vs. source-drain voltage

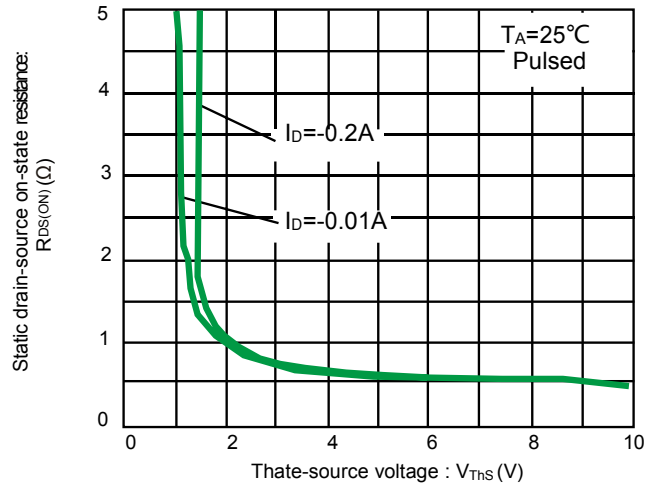


Fig 10. Static drain-source on-state resistance vs. gate source voltage

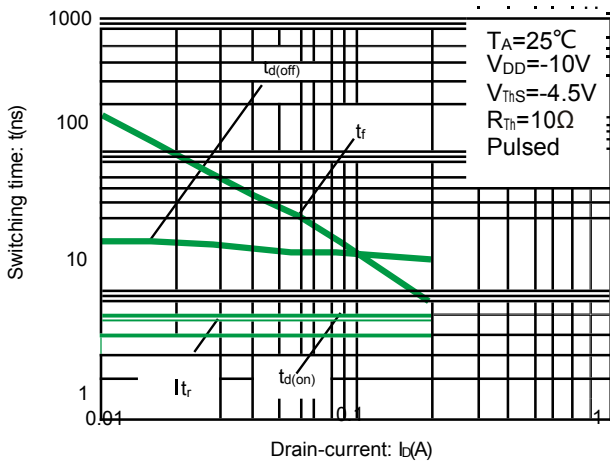


Fig 11. Switching characteristics

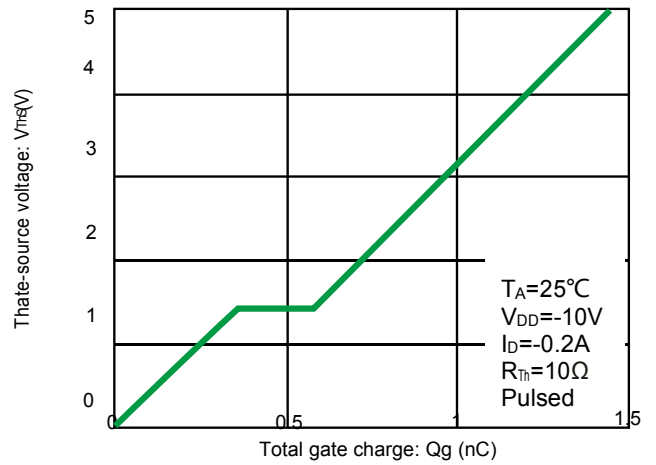


Fig 12. Dynamic input characteristics

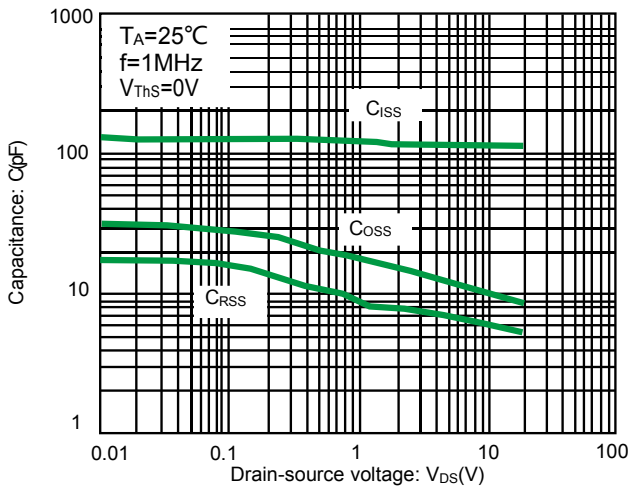


Fig 13. Typical capacitance vs. drain-source voltage

**Measurement circuit**

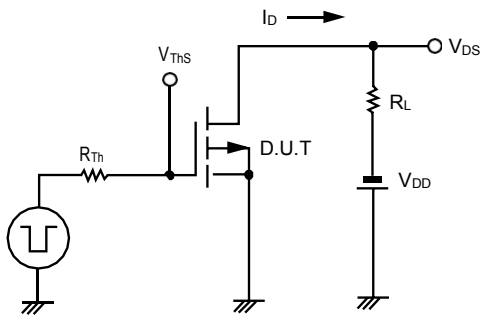


Fig.1-1 Switching time measurement circuit

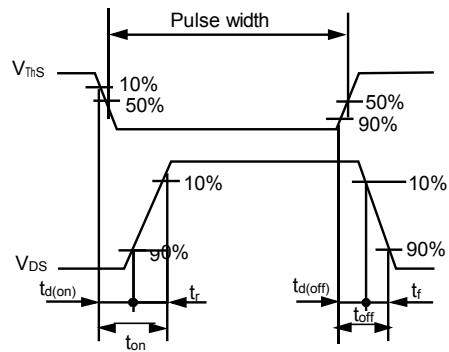


Fig.1-2 Switching time waveforms

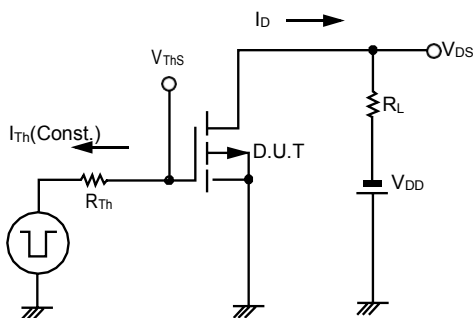


Fig.2-1 Thate charge measurement circuit

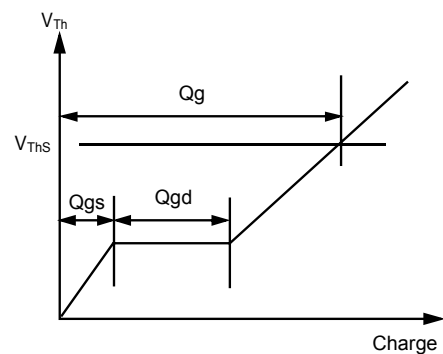
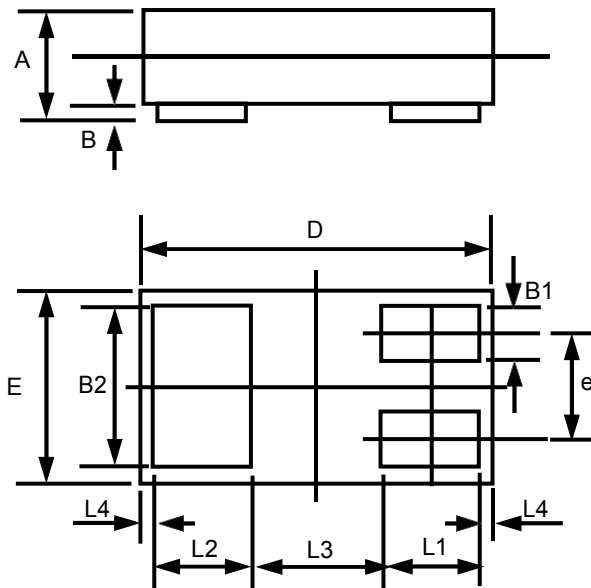
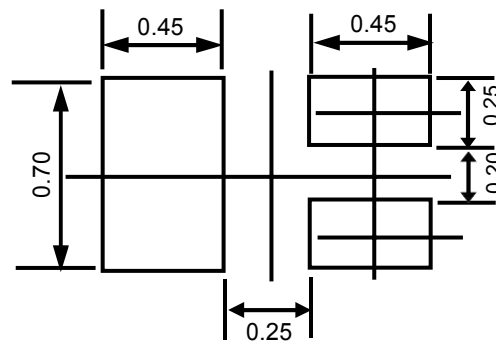


Fig.2-2 Thate charge waveform

**Product dimension (DFN1006-3L)**



Dim	Millimeters		
	MIN	Typ	MAX
A	0.33	0.47	0.50
B	0.00	0.03	0.05
B1	0.10	0.15	0.20
B2	0.45	0.50	0.55
D	0.85	1.00	1.15
E	0.45	0.60	0.75
e	--	0.35	--
L1	0.20	0.25	0.30
L2	0.20	0.25	0.30
L3	--	0.39	--
L4	--	0.05	--



**Suggested PCB Layout**

Unit:mm