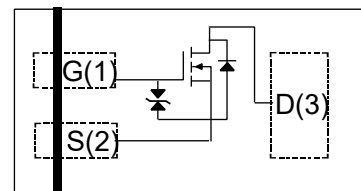


Description

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

MOSFET Product Summary

$V_{DS}(V)$	$R_{DS(on)}(m\Omega)$	$I_D(A)$
20	200@ $V_{GS}=4.5V$	± 1
	250@ $V_{GS}=2.5V$	
	310@ $V_{GS}=1.8V$	



Top View

Absolute maximum rating@25°C

Parameter		Symbol	Value	Units
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	± 10	V
Continuous Drain Current	Continuous	I_D	± 1	A
	Pulsed	I_{DP}	± 4	
Total power dissipation		P_D	300	mW
Junction and Storage Temperature Range		T_J, T_{STG}	-55 to +150	°C

Thermal resistance

Parameter	Symbol	Limits	Units
Channel to ambient	$R_{th(ch-a)}$	420	°C/W

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D = 1mA, V_{GS} = 0V$	20	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 20V, V_{GS} = 0V$	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 8V$	-	-	± 10	μA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.4	-	0.9	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D = 0.65A$	-	200	250	m Ω
		$V_{GS} = 2.5V, I_D = 0.45A$	-	250	300	m Ω
		$V_{GS} = 1.8V, I_D = 0.25A$	-	310	450	m Ω
Forward transfer admittance	g_{FS}	$V_{DS} = 10V, I_D = 300mA$	-	1.6	-	s
Input Capacitance	C_{ISS}	$V_{GS} = 0V, V_{DS} = 10V,$ $f = 1MHz$	-	48	-	pF
Output Capacitance	C_{OSS}		-	13	-	pF
Reverse Transfer Capacitance	C_{RSS}		-	10	-	pF
Total Gate Charge	Q_G	$V_{GS} = 4.5V, V_{DS} = 10V,$ $I_D = 0.01A$	-	1.0	-	nC
Gate-Source Charge	Q_{GS}		-	0.1	-	nC
Gate-Drain Charge	Q_{GD}		-	0.42	-	nC
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 6V, V_{GS} = 4.5V,$ $R_G = 50\Omega, R_L = 12\Omega$ $I_D = 500mA$	-	9	-	ns
Turn-Off Delay Time	$t_{d(off)}$		-	40	-	ns
Turn-On Rise Time	t_r		-	4	-	ns
Turn-On Fall Time	t_f		-	18	-	ns
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS} = 0V, I_S = 100mA$	-	0.7	1	V

Typical Characteristics

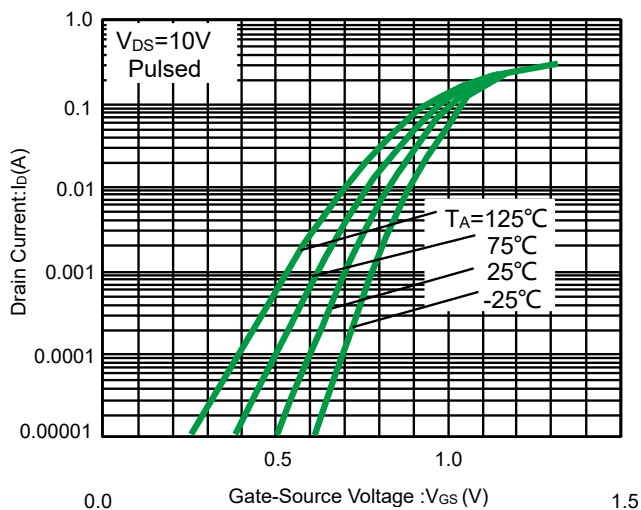
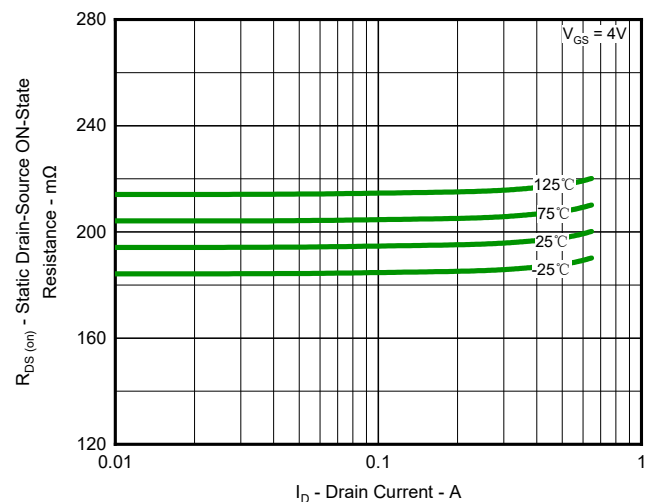


Fig 1. Typical transfer Characteristics

Fig 2. Static drain-source on-state resistance vs. drain current(I_D)

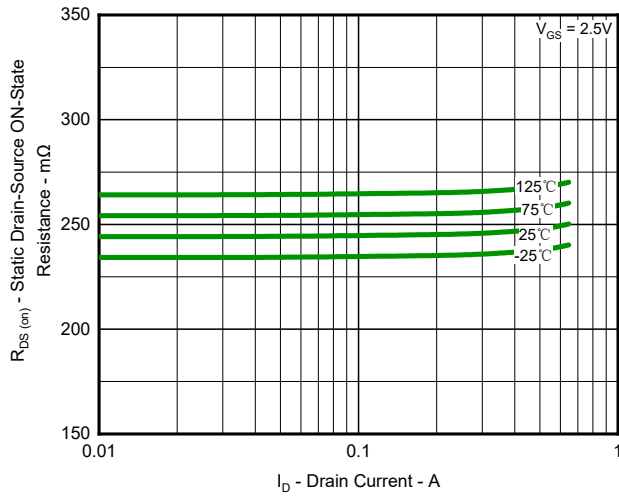


Fig 3. Static drain-source on-state resistance
Vs. drain current (II)

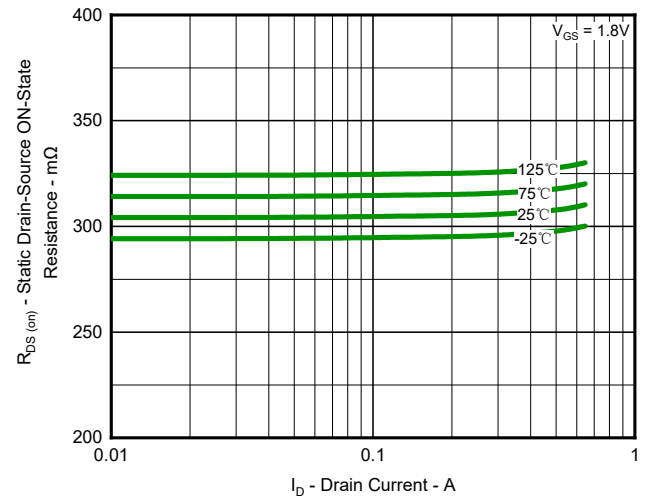


Fig 4. Static drain-source on-state resistance vs.
drain current (III)

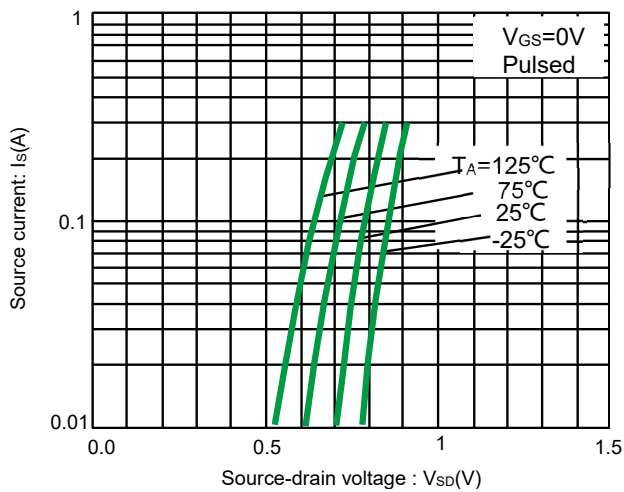


Fig 5. Source current vs. source-drain voltage

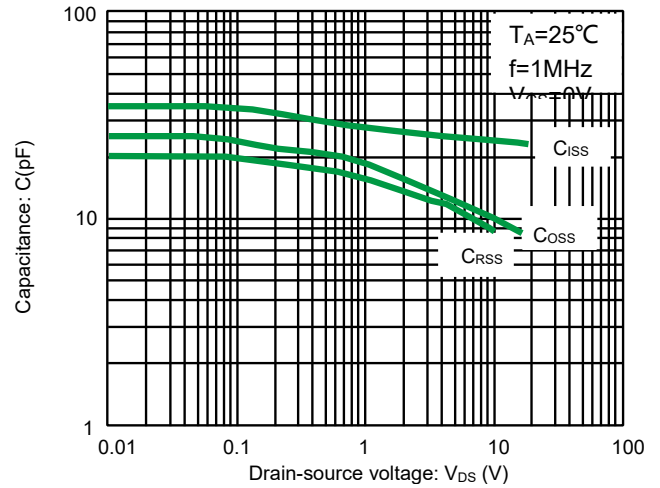


Fig 6. Typical capacitance vs. drain-source voltage

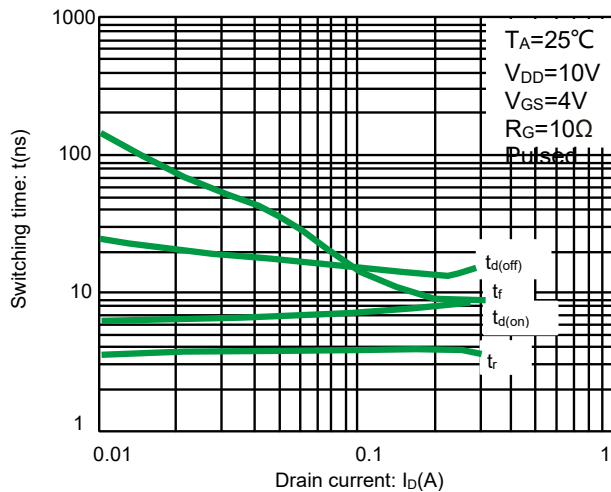


Fig 7. Switching characteristics

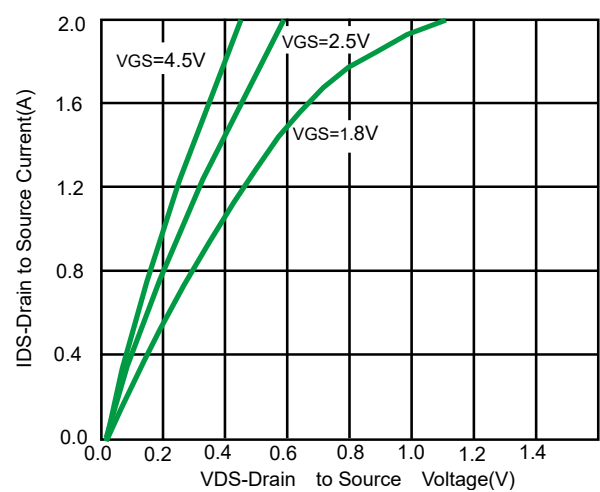


Fig 8. Output characteristics

Switching characteristics measurement circuit

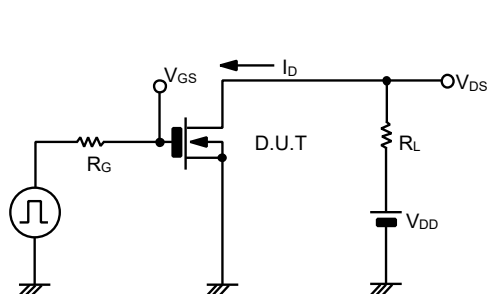


Fig.8 Switching time measurement circuit

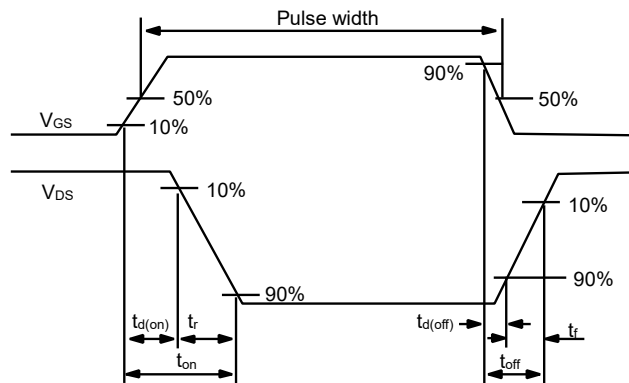
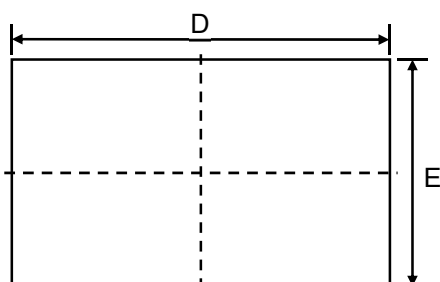
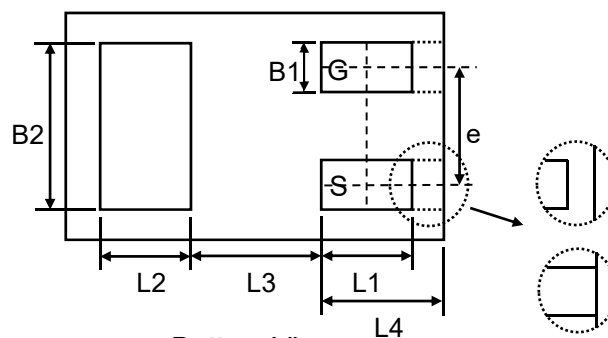


Fig.9 Switching time waveforms

Product dimension (DFN1006-3L)



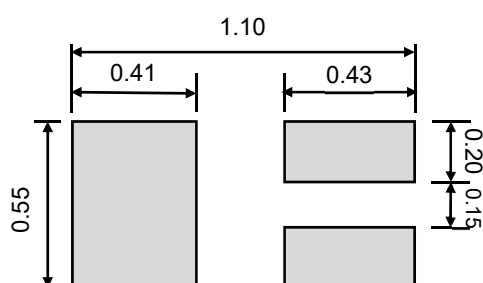
Top View



Bottom View



Side View

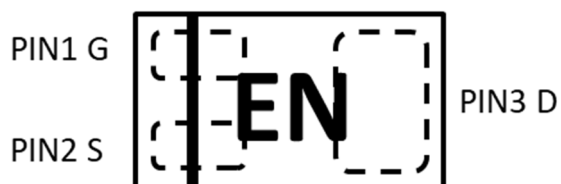


Suggested PCB Layout

Dim	Millimeters			Inches		
	Min	Nom	Max	Min	Nom	Max
A	0.33	0.45	0.498	0.013	0.018	0.020
B	0.00	0.02	0.05	0.000	0.001	0.002
B1	0.10	0.15	0.20	0.004	0.006	0.008
B2	0.45	0.50	0.55	0.018	0.020	0.022
D	0.90	1.00	1.05	0.035	0.039	0.041
E	0.50	0.60	0.65	0.020	0.024	0.026
e	0.35			0.014		
L1	0.20	0.25	0.30	0.008	0.010	0.012
L2	0.20	0.25	0.30	0.008	0.010	0.012
L3	0.39			0.015		
L4	0.25	0.30	0.35	0.010	0.012	0.014

Unit: mm

Marking information



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