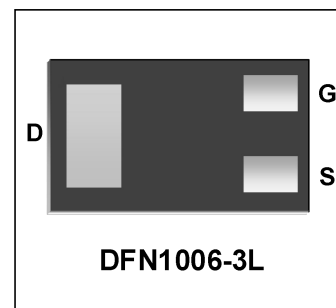




N-Channel Trench MOSFET

Features

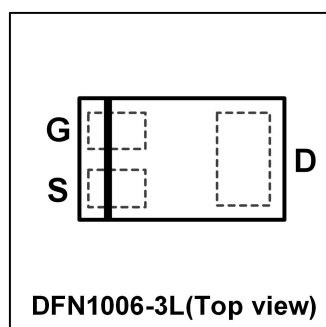
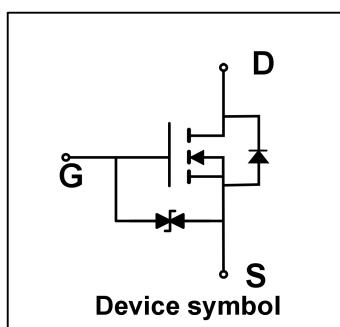
- $V_{DS} = 60V$, $I_D = 0.34A$
 $R_{DS(on)} < 2.1\Omega$ @ $V_{GS} = 10V$
 $R_{DS(on)} < 2.8\Omega$ @ $V_{GS} = 4.5V$
- Very Fast Switching
- Trench MOSFET Technology
- Low Threshold Voltage
- Pb Free Device
- ESD Protected



Mechanical Characteristics

- DFN1006-3L Package
- Marking : Making Code
- RoHS Compliant

Schematic & PIN Configuration



Absolute Maximum Rating

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	0.34	A
Power Dissipation	P_D	360	mW
Junction Temperature	T_J	150	$^{\circ}C$
Storage Temperature	T_{STG}	-55 to +150	$^{\circ}C$

Electrical Characteristics (Tamb=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS} = 0V, I_D = 250\mu A$	60	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1	1.3	2.0	V
Drain Cut-off Current	I_{DSS}	$V_{DS} = 60V, V_{GS} = 0V$	-	-	1	μA
Gate Leakage Current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$	-	-	± 10	μA
Drain-Source on-State Resistance ¹	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 0.5A$	-	1.3	2.1	Ω
		$V_{GS} = 4.5V, I_D = 0.2A$	-	1.4	2.8	
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS} = 10V, V_{GS} = 0V,$ $f = 1\text{ MHz}$	-	29	-	μF
Output Capacitance	C_{oss}		-	7.5	-	
Reverse Transfer Capacitance	C_{rss}		-	3	-	
Switching Characteristics						
Total Gate Charge	Q_g	$V_{DS} = 10V, V_{GS} = 4.5V,$ $I_D = 0.25A$	-	0.3	-	nC
Gate-Source Charge	Q_{gs}		-	0.2	-	
Gate-Drain Charge	Q_{gd}		-	0.08	-	
Turn-on Delay Time ²	$t_{d(on)}$	$V_{DD} = 30V, V_{GEN} = 10V,$ $I_D = 0.2A, R_G = 25\Omega$	-	3.9	-	ns
Rise Time ²	t_r		-	3.4	-	
Turn-off Delay Time ²	$t_{d(off)}$		-	15.7	-	
Fall Time ²	t_f		-	9.9	-	
Source-Drain Diode Characteristics						
Body Diode Voltage	V_{SD}	$I_S = 0.3A, V_{GS} = 0V$	-	-	1.5	V

Notes:

1. Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
2. Guaranteed by design, not subject to producing.

Typical Characteristics

Figure 1. Output Characteristics

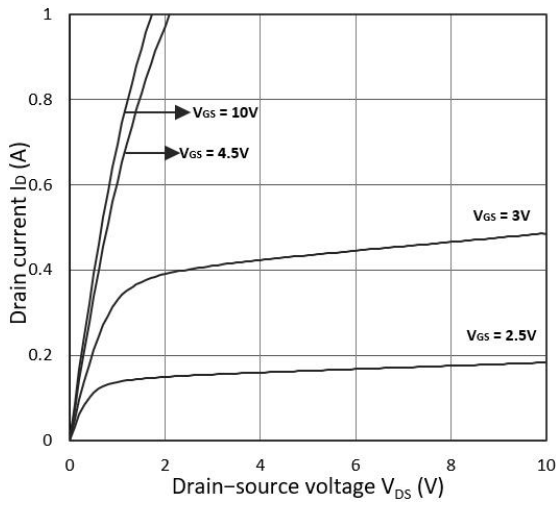


Figure 2. Transfer Characteristics

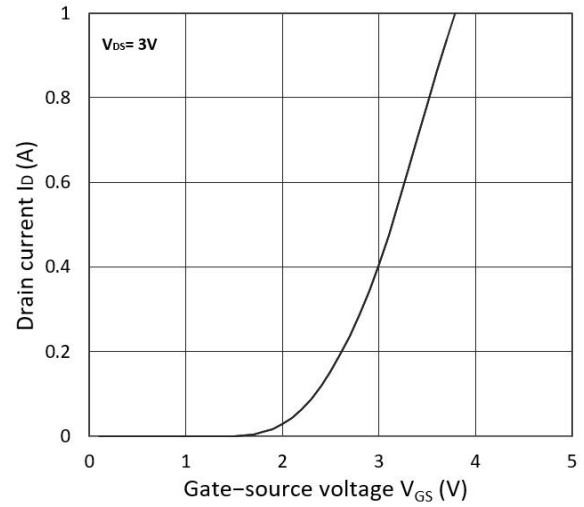
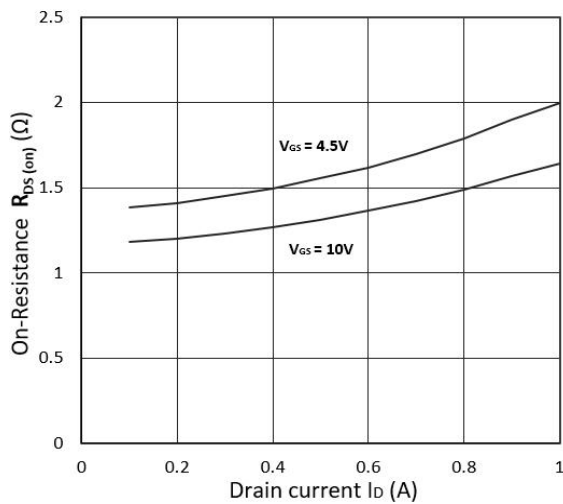
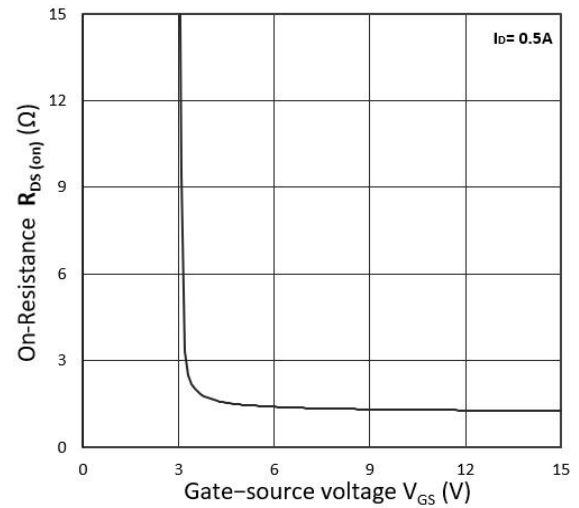
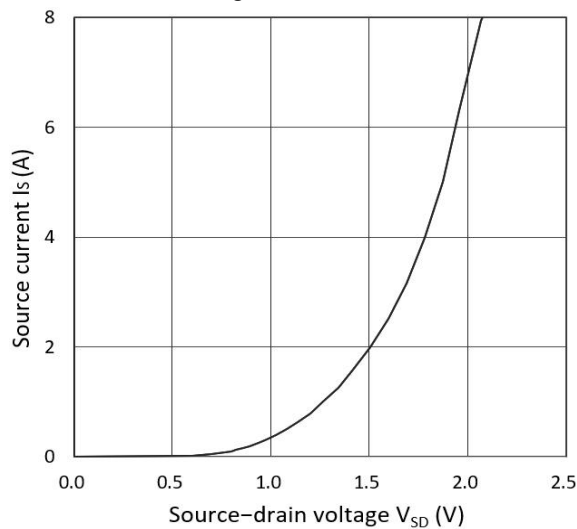
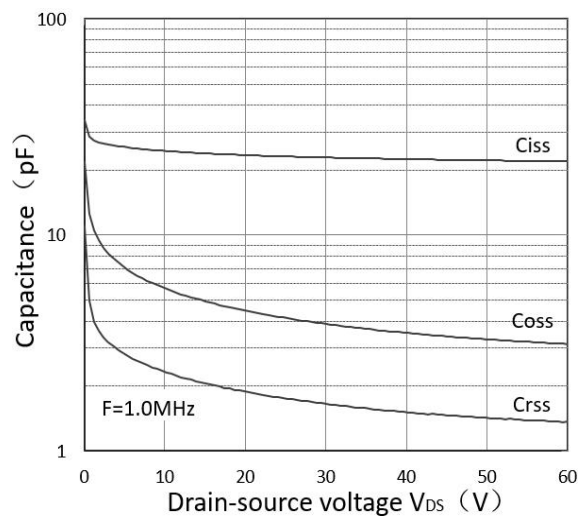
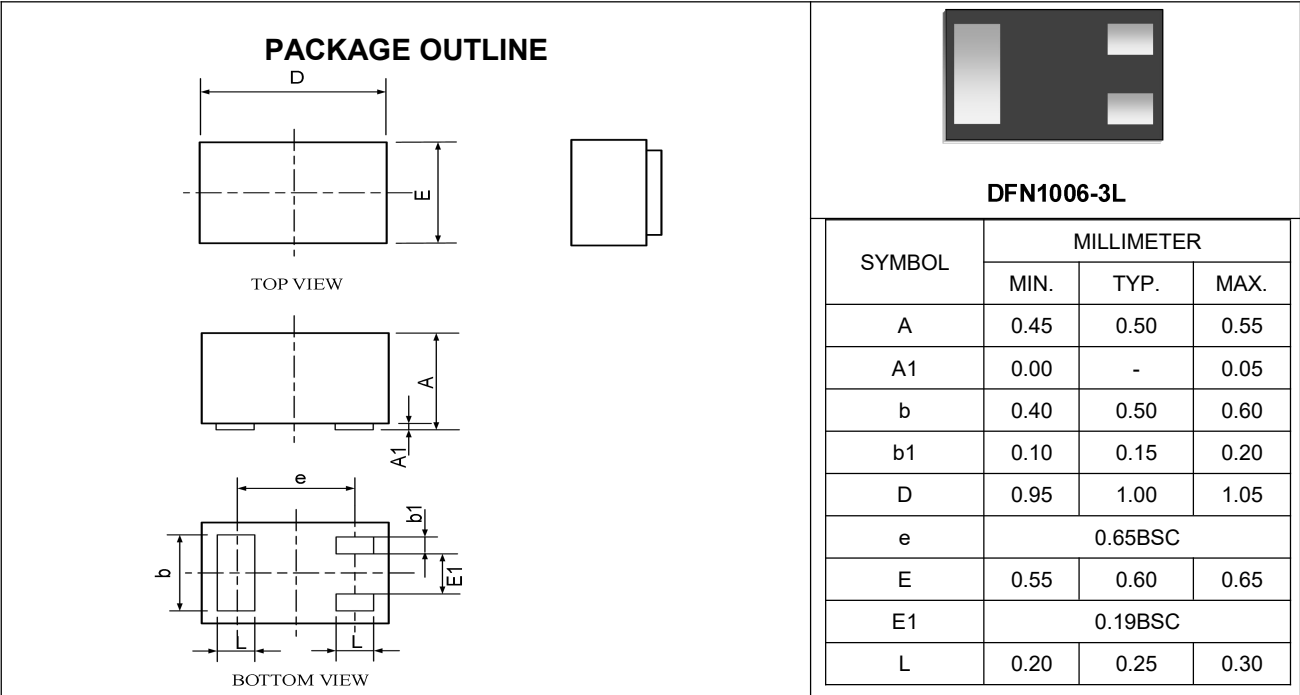
Figure 3. $R_{DS(on)}$ vs. I_D Figure 4. $R_{DS(on)}$ vs. V_{GS} Figure 5. I_S vs. V_{SD} 

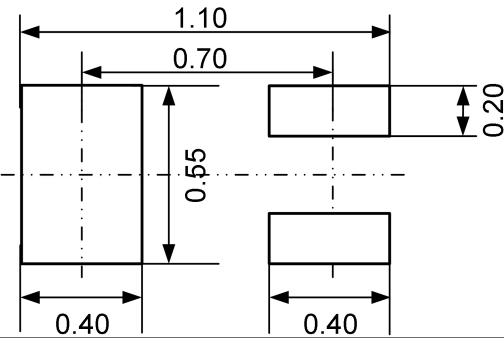
Figure 6. Capacitance Characteristics



Outline Drawing – DFN1006-3L



Land Pattern



Marking Codes

Part Number	EM03N06FX
Marking Code	

Package Information

Qty: 10k/Reel

Revision History

No.	Version	Date	Revision Item	Request	Function and characteristic checking	Package dimension checking	Typos checking
1	1.0	2019-09-19	Released Version	Qi Shu Kun	Qi Shu Kun	Liu Jia Ying	Liu Jia Ying