

## Descriptions

This 60V,0.3A N-Channel MOSFET in a DFN1006-3L Plastic Package.

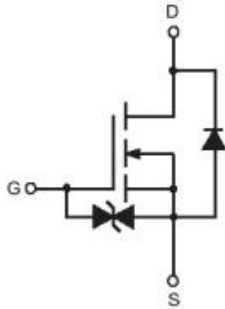
## Features

- Sensitive gate trigger current and Low Holding current
- ESD protected up to 2KV
- Halogen-free Product

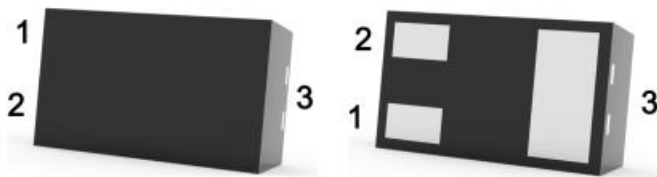
## Applications

Intended for use in general purpose switching and phase control applications

## Equivalent Circuit



## Pinning



Pin1:Gate Pin2:Source Pin3:Drain

**Absolute Maximum Ratings(Ta=25°C)**

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V <sub>DSS</sub>	60	V
Drain-Gate Voltage	V <sub>DGR</sub>	60	V
Drain Current - Continuous	I <sub>D</sub> (Ta=25°C)	300	mA
	I <sub>D</sub> (Ta=85°C)	210	
Drain Current - Pulsed	I <sub>DM</sub>	1200	mA
Gate-Source Voltage - Continuous	V <sub>GSS</sub>	±20	V
Power Dissipation	P <sub>D</sub>	360	mW
Junction Temperature Range	T <sub>J</sub>	-55~150	°C
Storage Temperature Range	T <sub>stg</sub>	-55~150	°C
Maximum Junction-to-Ambient	R <sub>θJA</sub>	350	°C/W
Maximum Junction-to-Solder Point	R <sub>θJSP</sub>	92	°C/W

**Electrical Characteristics(Ta=25°C)**

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V <sub>DSS</sub>	V <sub>GS</sub> =0 I <sub>D</sub> =250μA	60			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>GS</sub> =0 V <sub>DS</sub> =60V			1.0	μA
Gate-Source Leakage	I <sub>GSS</sub>	V <sub>DS</sub> =0V V <sub>GS</sub> =±20V			±10	μA
Static Drain-Source On-Resistance	R <sub>DS(on)(1)</sub>	V <sub>GS</sub> =10V I <sub>D</sub> =0.5A		1.7	2	Ω
	R <sub>DS(on)(2)</sub>	V <sub>GS</sub> =5V I <sub>D</sub> =0.05A		1.9	2.5	Ω
Drain-Source Diode Forward Voltage	V <sub>SD</sub>	V <sub>GS</sub> =0V I <sub>S</sub> =250mA			1.35	V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> I <sub>D</sub> =250uA	1.0	1.4	2.0	V
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> =0V, f=1MHz, V <sub>DS</sub> =20V		25	50	pF
Output Capacitance	C <sub>oss</sub>			11	25	
Reverse Transfer Capacitance	C <sub>rss</sub>			2.5	5	
Total Gate Charge	Q <sub>G(TOT)</sub>	V <sub>GS</sub> =4.5V, V <sub>DS</sub> =10V; I <sub>D</sub> =200 mA		0.7		nC
Threshold Gate Charge	Q <sub>G(TH)</sub>			0.1		
Gate-to-Source Charge	Q <sub>GS</sub>			0.3		
Gate-to-Drain Charge	Q <sub>GD</sub>			0.1		
Turn-On Delay Time	t <sub>d(ON)</sub>	V <sub>GS</sub> =10V, V <sub>DD</sub> =25V, I <sub>D</sub> =500mA, R <sub>G</sub> =25Ω		12.2		ns
Rise Time	t <sub>r</sub>			9.0		
Turn-Off Delay Time	t <sub>d(OFF)</sub>			55.8		
Fall Time	t <sub>f</sub>			29		

Electrical Characteristic Curve

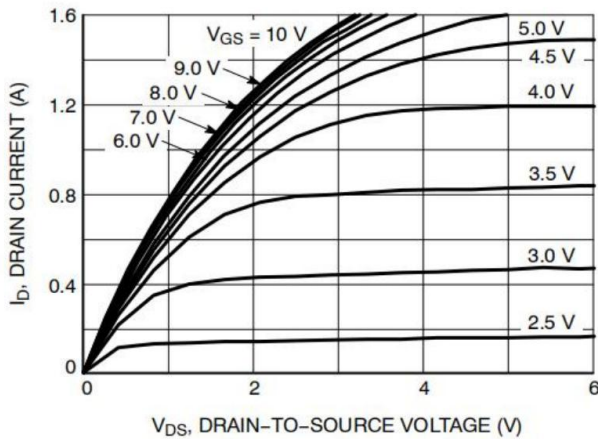


Figure 1. On-Region Characteristics

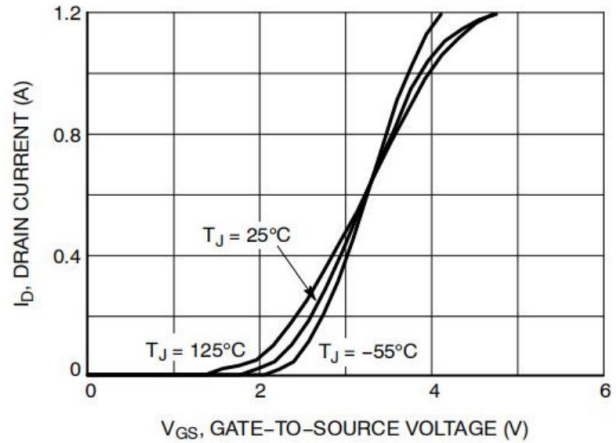


Figure 2. Transfer Characteristics

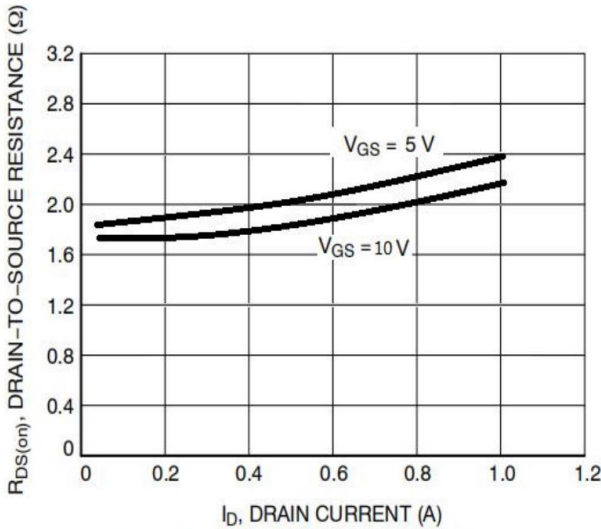


Figure 3. On-Resistance vs. Drain Current and Temperature

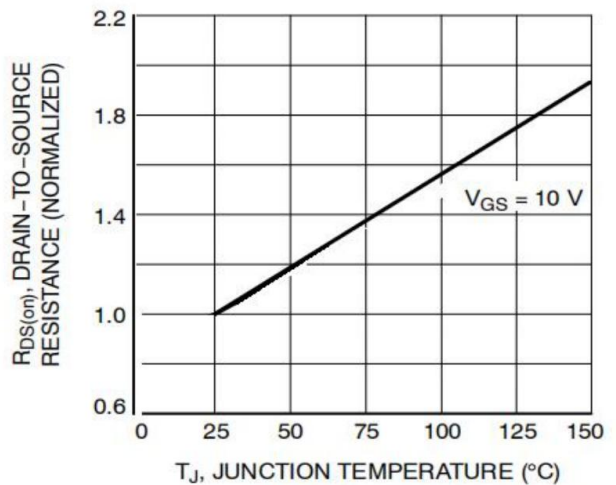


Figure 4 On-Resistance Variation with Temperature

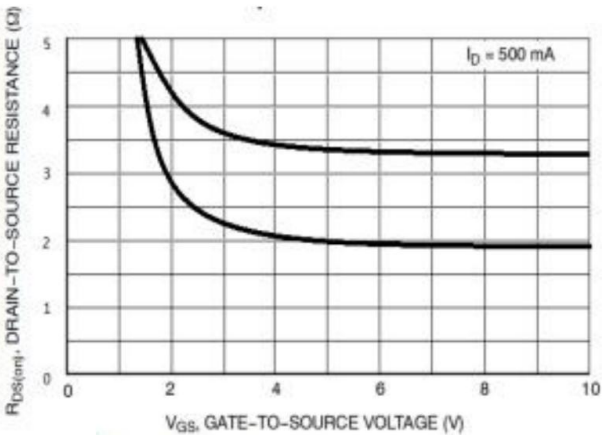


Figure 5. On-Resistance vs. Gate-to-Source Voltage

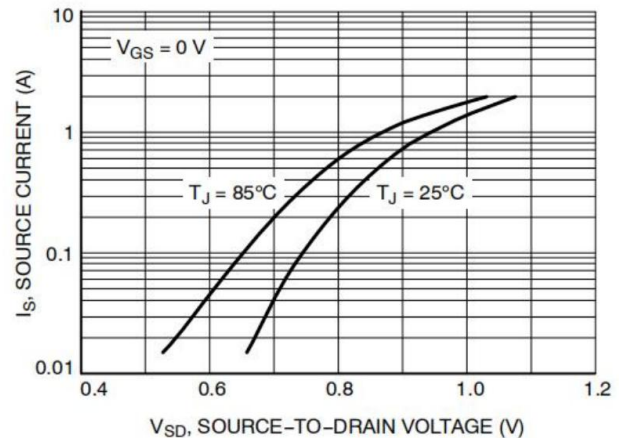


Figure 6 Diode Forward Voltage vs. Current

Electrical Characteristic Curve

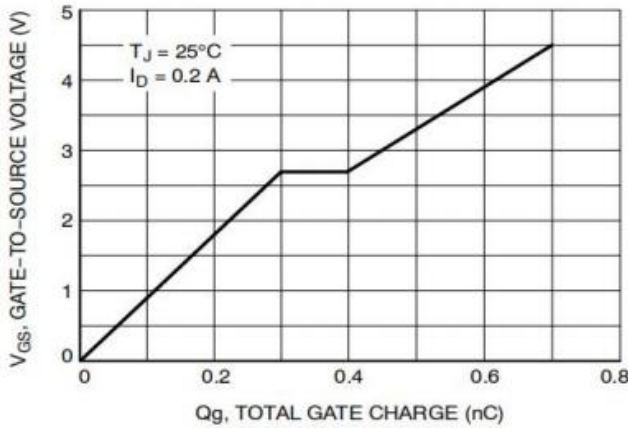


Figure 7. Gate-to-Source and Drain-to-Source Voltage vs. Total Charge

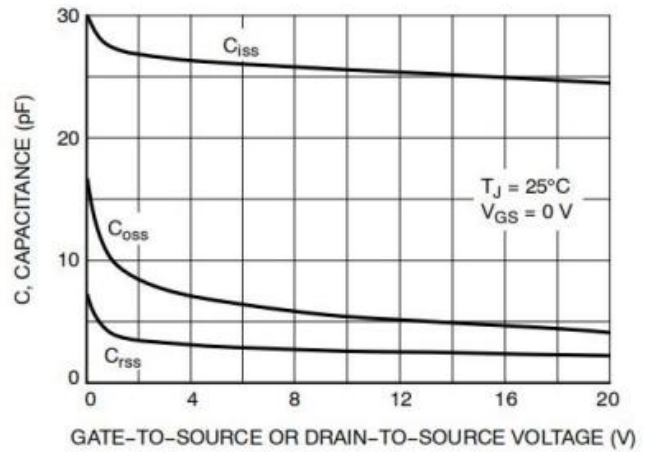


Figure 8. Capacitance Variation

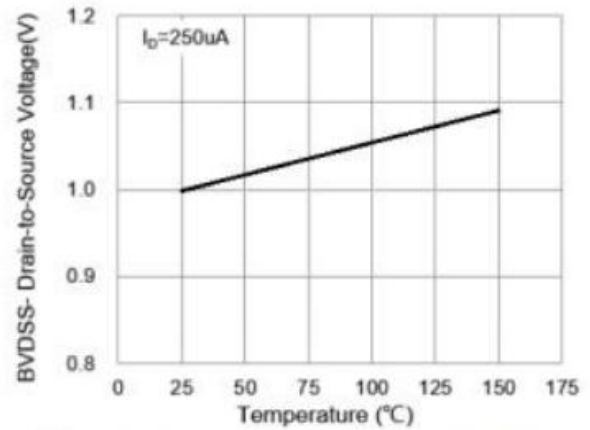
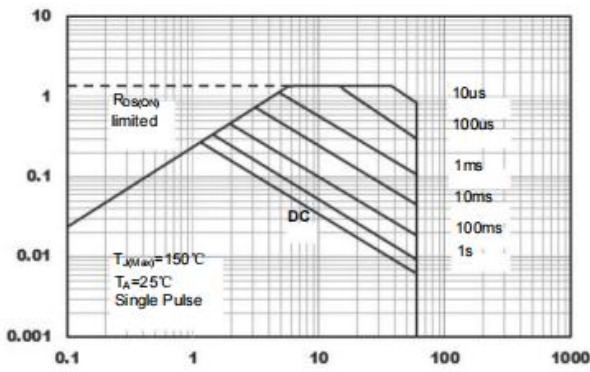


Figure 10 : Breakdown Voltage vs. Temperature

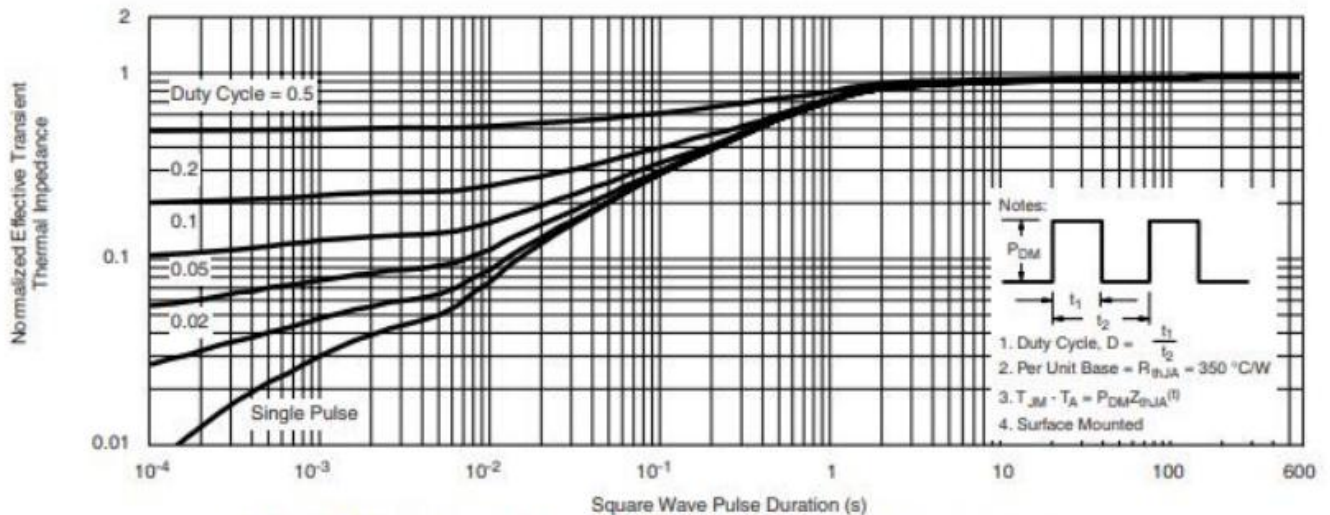


Figure 11 : Normalized Thermal Transient Impedance, Junction-to-Ambient

## Marking Instructions



Note:  
702K2: Product Type

## Packaging SPEC

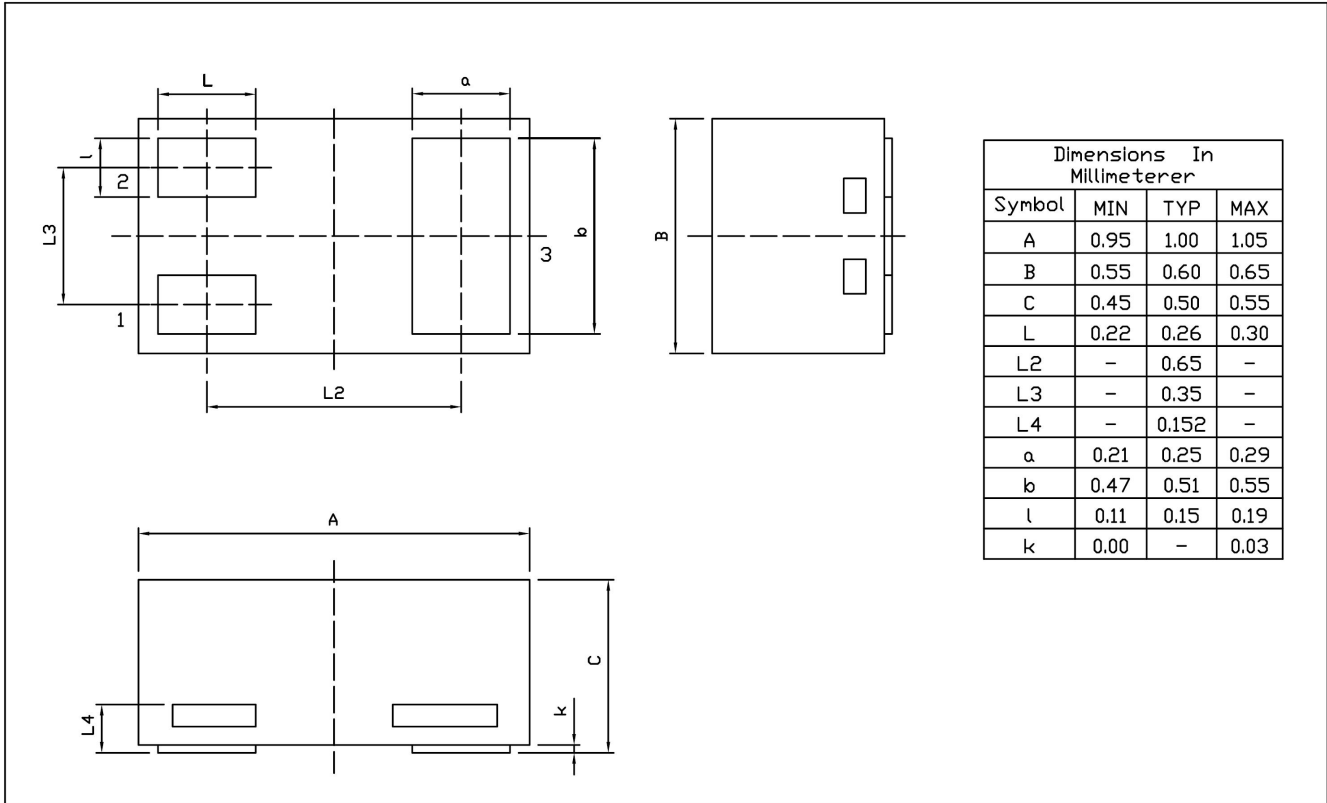
### REEL INFORMATION

Package Type	Units					Dimension (unit: mm <sup>3</sup> )		
	Units/Reel	Reels/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Reel	Inner Box	Outer Box
DFN1006-3L	10,000	10	100,000	4	400,000	7" ×8	210×205×205	445×230×435

**Package Outline Dimensions**

DFN1006-3L

Unit:mm



Rev.03 202108