

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
60V	0.9Ω@10V	0.34A
	1.1Ω@4.5V	

Features

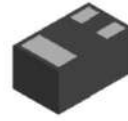
- Trench Technology Power MOSFET
- Low $R_{DS(on)}$
- Low Gate Charge
- ESD Protected

Applications

- Load Switch
- DC/DC Converter

60V N-Channel Trench MOSFET

DFN1006-3L

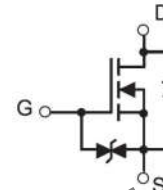


Bottom View

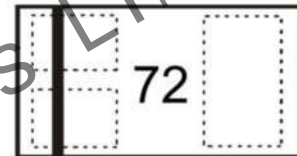


Top View
Internal Schematic

Schematic diagram



Marking



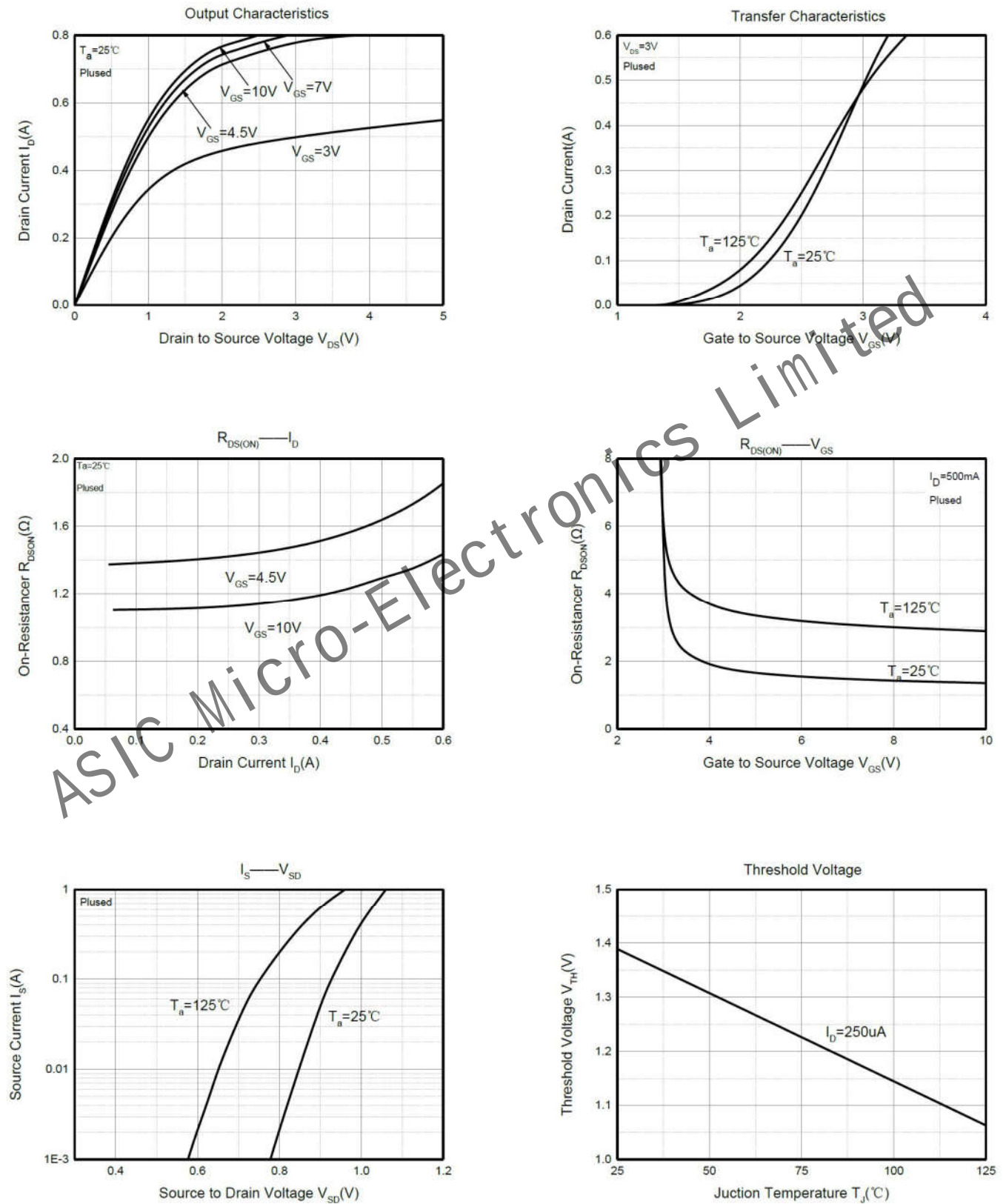
Absolute Maximum rating ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter		Symbol	Value	Unit
Drain - Source Voltage		V_{DS}	60	V
Gate - Source Voltage		V_{GS}	±20	V
Continuous Drain Current	$T_A = 25^\circ\text{C}$	I_D	0.34	A
	$T_A = 70^\circ\text{C}$		0.26	
Pulsed Drain Current		I_{DM}	1.2	A
Power Dissipation	$T_A = 25^\circ\text{C}$	P_D	0.27	W
	$T_A = 70^\circ\text{C}$		0.15	
Thermal Resistance from Junction to Ambient		$R_{\theta JA}$	455	$^\circ\text{C/W}$
Operating and Storage Temperature Range		T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

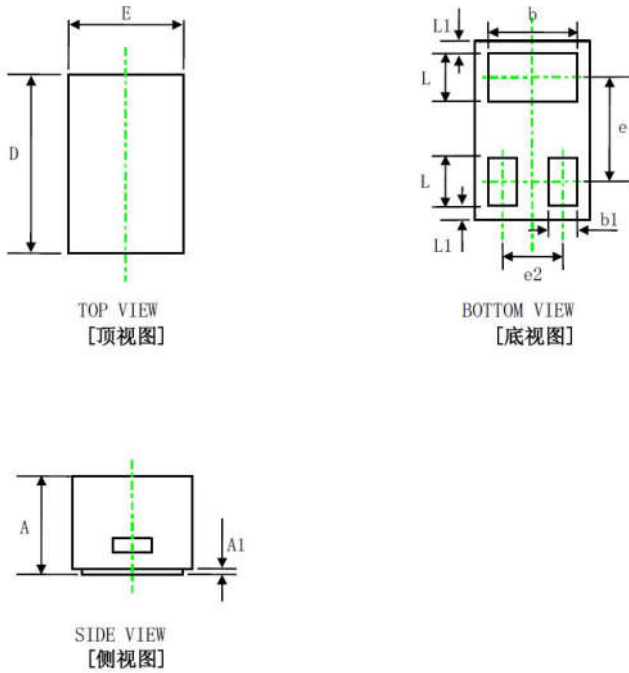
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain - Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	60			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 60V, V_{GS} = 0V, T_J=25^{\circ}C$			1	μA
		$V_{DS} = 60V, V_{GS} = 0V, T_J=125^{\circ}C$			500	
Gate - Body Leakage Current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 10	μA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.2	1.5	2.5	V
Drain-source On-resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 40mA$		0.9	2.0	Ω
		$V_{GS} = 4.5V, I_D = 30mA$		1.1	2.5	
Forward Transconductance	g_{fs}	$V_{DS} = 5.0V, I_D = 40mA$	100			mS
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS}= 40V, V_{GS}= 0V, f= 1MHz$		41		pF
Output Capacitance	C_{oss}			3.6		
Reverse Transfer Capacitance	C_{rss}			2.9		
Gate Resistance	R_g	$V_{DS}= 0V, V_{GS}= 0V, f= 1MHz$		81		Ω
Switching Characteristics						
Total Gate Charge	Q_g	$V_{DS}= 50V, V_{GS}= 10V, I_D= 1A$		1.4		nC
Gate-source Charge	Q_{gs}			0.24		
Gate-drain Charge	Q_{gd}			0.24		
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}= 50V, V_{GS}= 10V, I_D= 1A, R_g= 6\Omega$		4		ns
Turn-on Rise Time	t_r			5		
Turn-off Delay Time	$t_{d(off)}$			19		
Turn-off Fall Time	t_f			12		
Source - Drain Diode Characteristics						
Diode Forward Voltage	V_{SD}	$V_{GS} = 0V, I_S = 0.3A$			1.2	V

Typical Characteristic



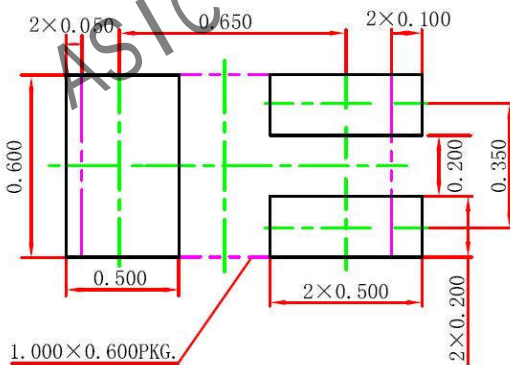
Dimension

DFN1006-3L



Symbol	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.400	0.550	0.016	0.022
A1	0.000	0.050	0.000	0.002
D	0.950	1.050	0.037	0.041
E	0.550	0.650	0.022	0.026
b	0.400	0.600	0.016	0.024
e	0.65 TYP		0.026 TYP	
e2	0.35 TYP		0.014 TYP	
L1	0.05 REF		0.002 REF	
L	0.200	0.300	0.008	0.012
b1	0.100	0.200	0.004	0.008

Recommended Land Pattern



Note:

1. Controlling dimension: in millimeters
2. General tolerance: $\pm 0.05\text{mm}$
3. The pad layout is for reference only
4. Unit: mm