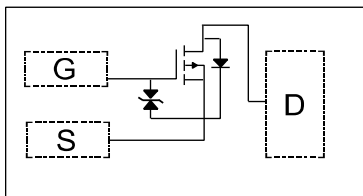


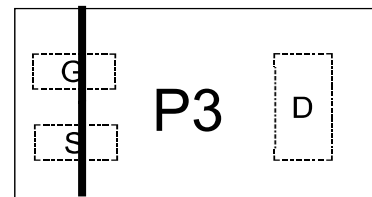
### Description

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> ( $\Omega$ )	I <sub>D</sub> (mA)
-20	0.75@ V <sub>GS</sub> =-4.5V	-300
	0.9@ V <sub>GS</sub> =-2.5V	
	1.5@ V <sub>GS</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
Gate-Source Voltage	V <sub>GS</sub>	±10	V
Continuous Drain Current	Continuous	I <sub>D</sub>	mA
	Pulsed	I <sub>DP</sub>	
Source current(Body diode)	Continuous	I <sub>S</sub>	mA
	Pulsed	I <sub>SP</sub>	
Total power dissipation	P <sub>D</sub>	150	mW
Channel temperature	T <sub>J</sub>	150	°C
Range of storage temperature	T <sub>STG</sub>	-55 to +150	°C

### Thermal resistance

Parameter	Symbol	Limits	Units
Channel to ambient	R <sub>th(ch-a)</sub>	833	°C/W

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Drain-Source Breakdown Voltage	$BV_{DSS}$	$I_D = -1mA, V_{GS} = 0V$	-20		-	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -20V, V_{GS} = 0V$	-	-	-1	$\mu A$
Gate-Body Leakage Current	$I_{GSS}$	$V_{DS} = 0V, V_{GS} = \pm 8V$	-	-	$\pm 2$	$\mu A$
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.5	-	-1.1	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = -4.5V, I_D = -300mA$	-	0.75	1.0	$\Omega$
		$V_{GS} = -2.5V, I_D = -200mA$	-	0.9	1.5	$\Omega$
		$V_{GS} = -1.8V, I_D = -100mA$		1.5	2.2	$\Omega$
Forward transfer admittance	$ Y_{fs} $	$V_{DS} = -10V, I_D = -200mA$	0.3			s
Input Capacitance	$C_{ISS}$	$V_{GS} = 0V, V_{DS} = -10V,$ $f = 1MHz$	-	110		pF
Output Capacitance	$C_{OSS}$		-	9		pF
Reverse Transfer Capacitance	$C_{RSS}$		-	5		pF
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -10V, V_{GS} = -4.5V,$ $R_G = 10\Omega, R_L = 100\Omega$ $I_D = -100mA$	-	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 Gate Charge	$Q_g$	$V_{DD} = -10V, V_{GS} = -4.5V,$ $I_D = -200mA$ $R_G = 10\Omega, R_L = 50\Omega$		1.4		nC
Gate-Source Charge	$Q_{gs}$			0.3		nC
Gate-Drain Charge	$Q_{gd}$			0.3		nC
Drain-Source Diode Forward Voltage	$V_{SD}$	$V_{GS} = 0V, I_S = -200mA$		-	-1.2	V

Typical Characteristics

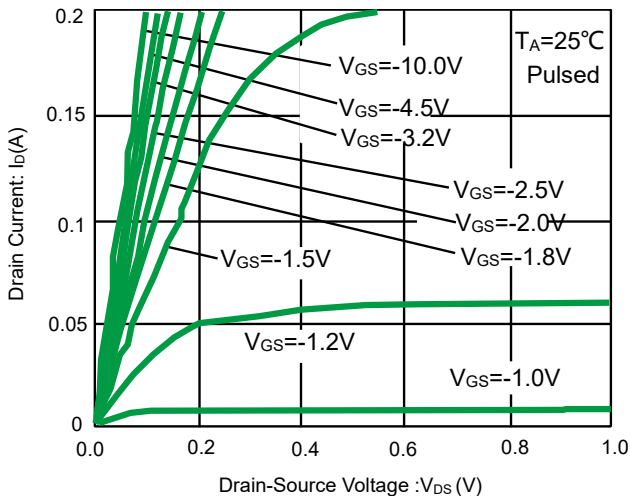


Fig 1. Typical output characteristics(I)

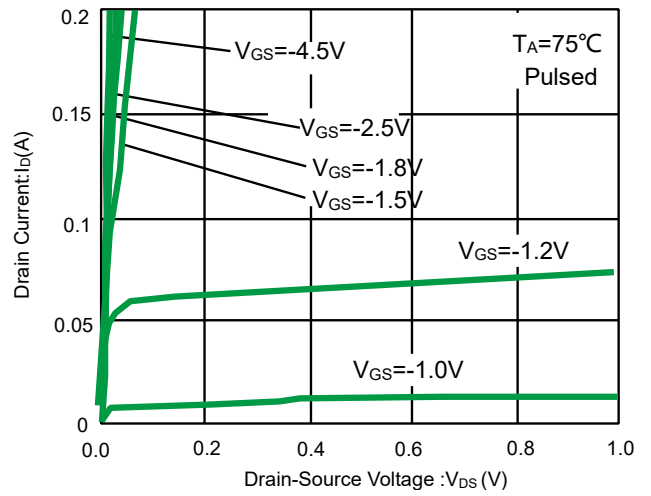


Fig 2. Typical output characteristics(II)

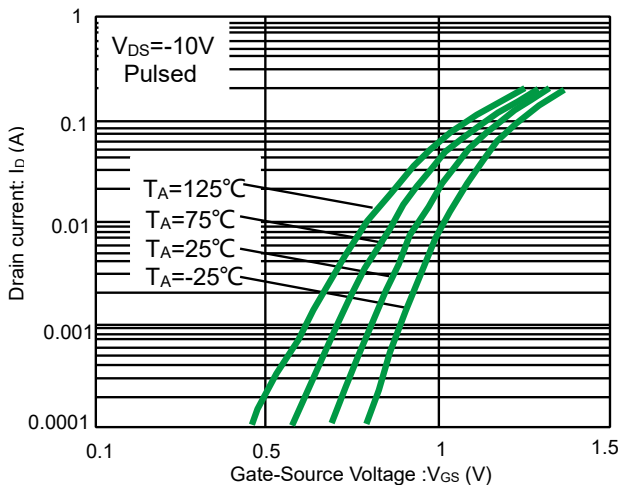


Fig 3. Typical transfer characteristics

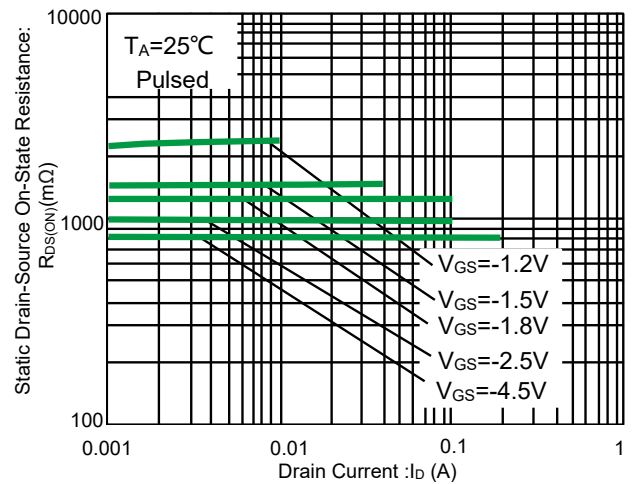


Fig 4. Static drain-source on-state resistance vs. drain current(I)

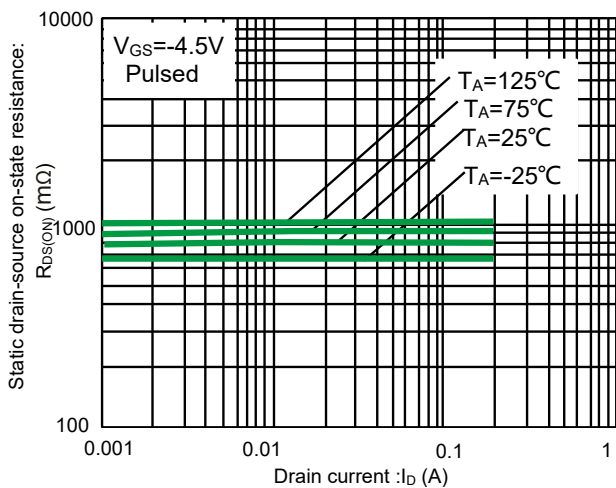


Fig 5. Static drain-source on-state resistance vs. drain current (II)

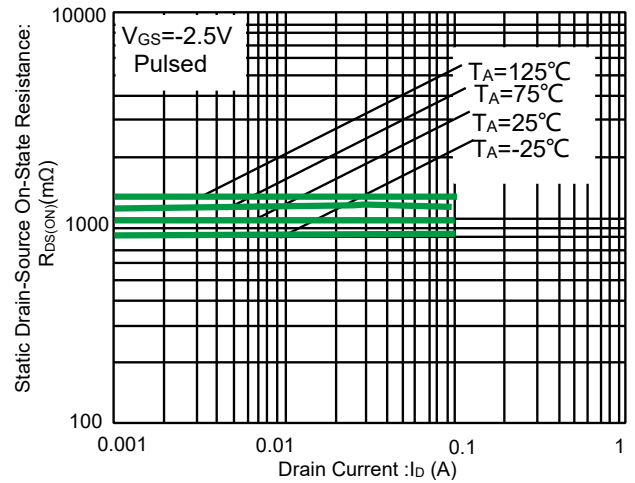


Fig 6. Static drain-source on-state resistance vs. drain current(III)

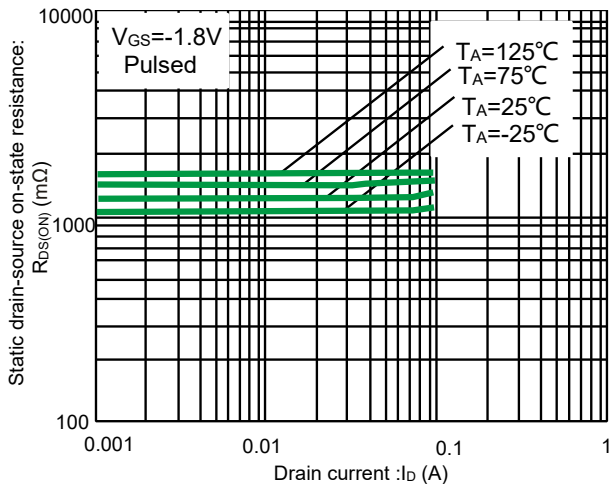


Fig 7. Static drain-source on-state resistance vs. drain current(I<sub>V</sub>)

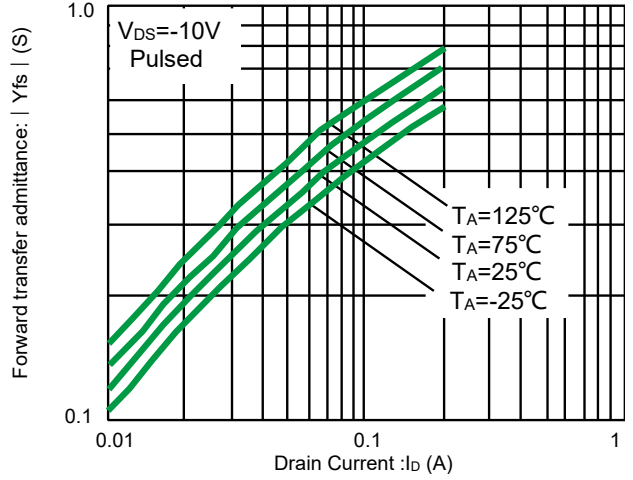


Fig 8. Forward transfer admittance vs. drain current

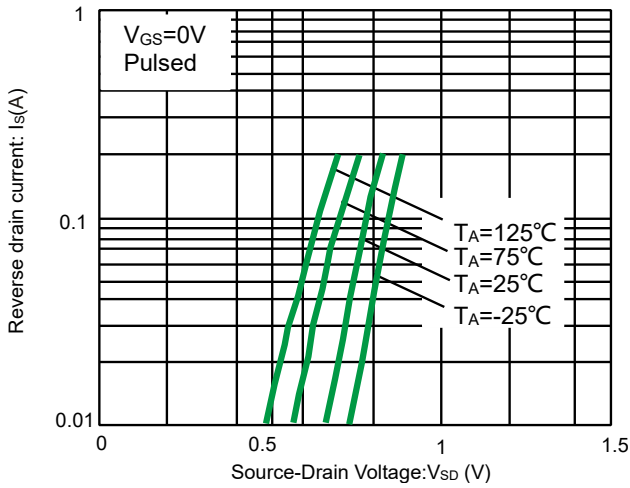


Fig 9. Reverse drain current vs. source-drain voltage

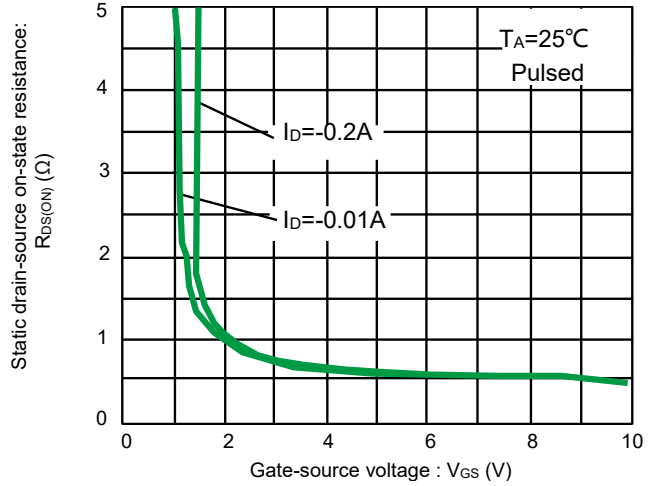


Fig 10. Static drain-source on-state resistance vs. gate source voltage

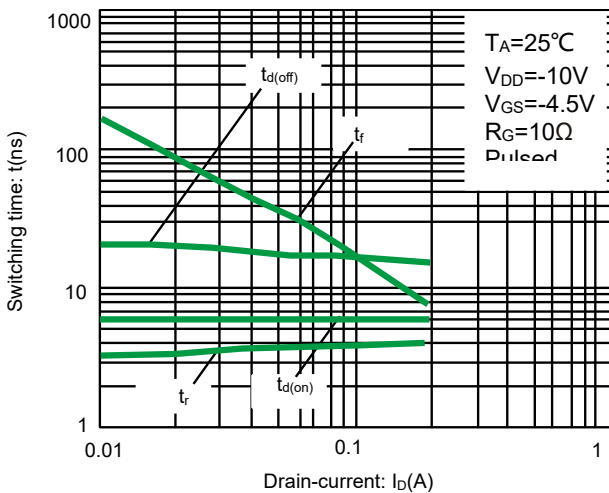


Fig 11. Switching characteristics

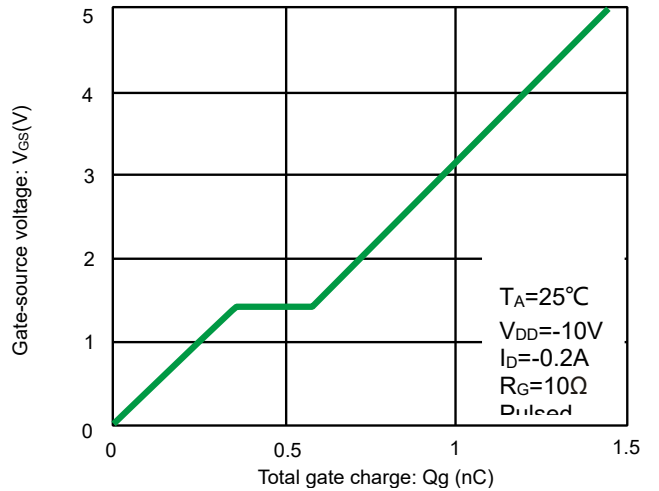


Fig 12. Dynamic input characteristics

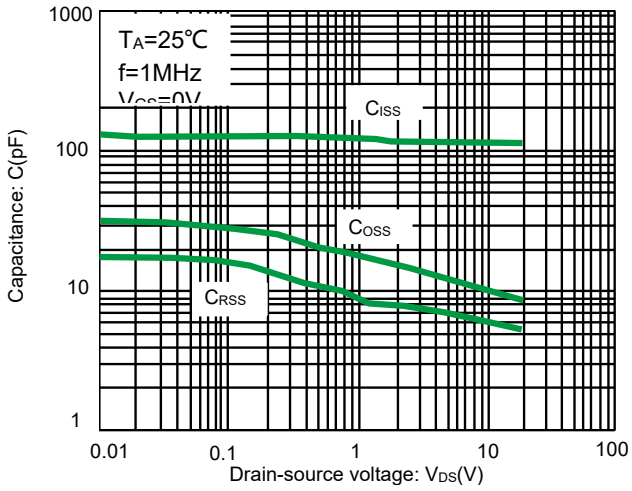


Fig 13. Typical capacitance vs. drain-source voltage

Measurement circuit

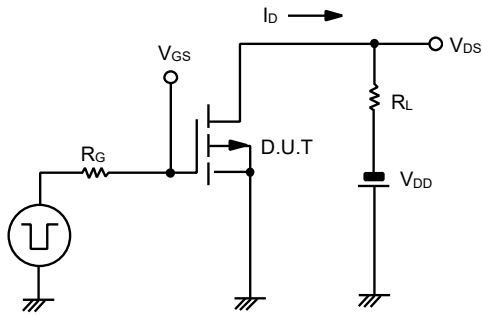


Fig.1-1 Switching time measurement circuit

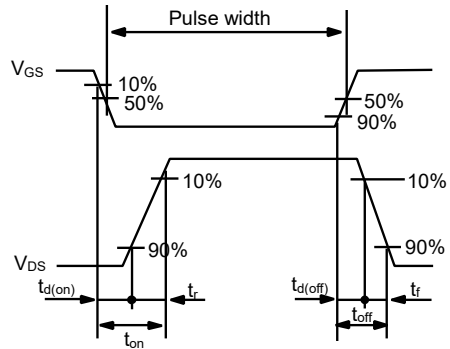


Fig.1-2 Switching time waveforms

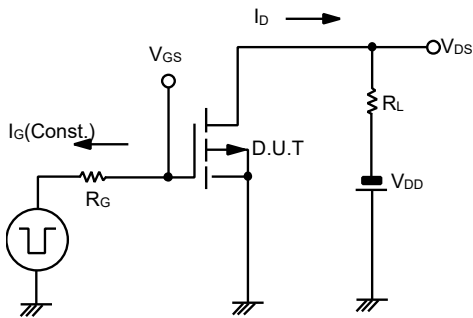


Fig.2-1 Gate charge measurement circuit

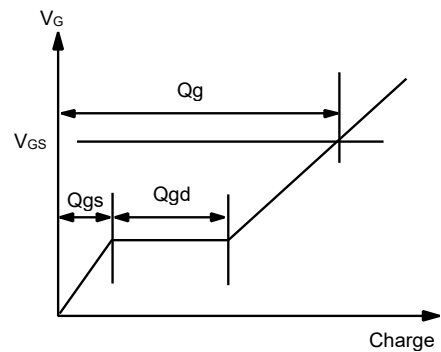
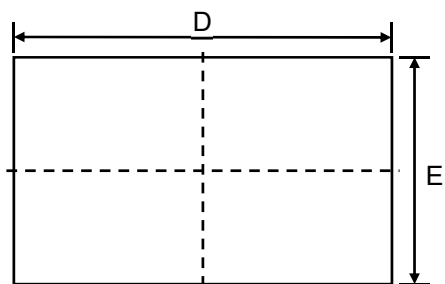
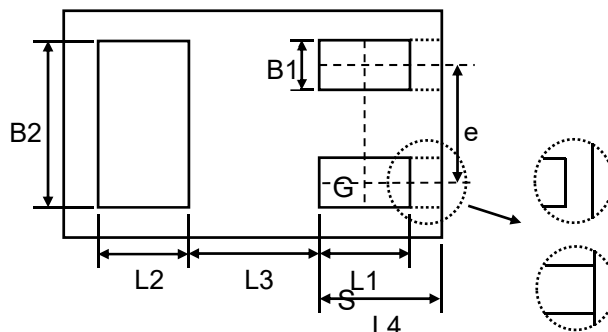


Fig.2-2 Gate charge waveform

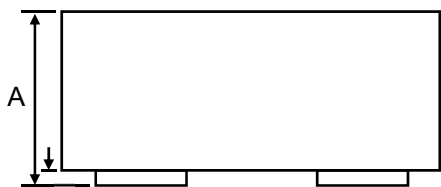
Product dimension (DFN1006-3L)



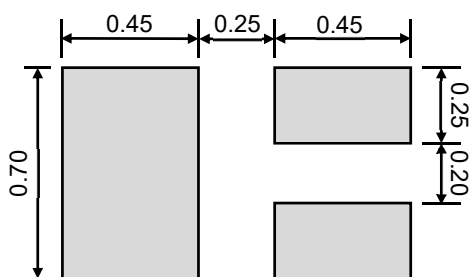
Top View



Bottom View



Side View

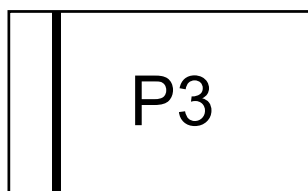


Suggested PCB Layout

Unit:mm

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

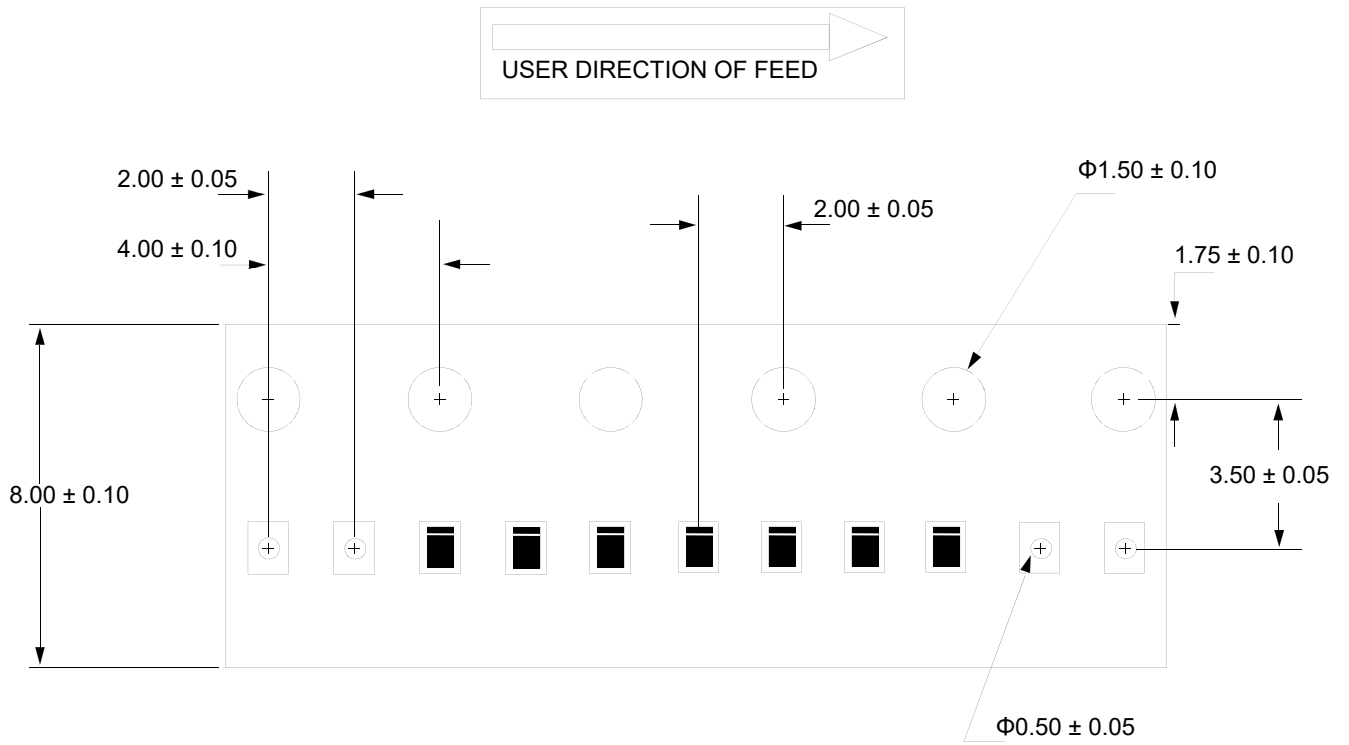
Marking information




Ordering information

Device	Package	Reel	Shipping
PPM3FD201E0	DFN1006-3L(Pb-Free)	7"	10000 / Tape & Reel

Load with information




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