

DFN1006-3 20V 195mΩ N-Channel MOSFET

MOSFET Product Summary

V_{DS}	$R_{DS(ON)}$ (Typ.)	I_D
20V	195mΩ @ $V_{GS}=4.5V$	1A
	290mΩ @ $V_{GS}=2.5V$	

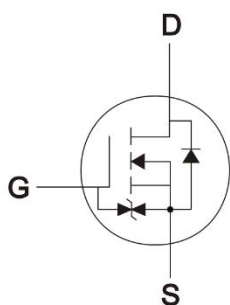
Description

The PM02N01P1 uses advanced Trench technology and designs to provide excellent $R_{DS(ON)}$ with low gate charge. This device is suitable for use in PWM, load switching and general purpose applications.

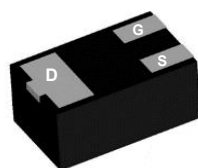
Features

- Surface Mount Package
- N-Channel Switch with Low $R_{DS(ON)}$
- Operated at Low Logic Level Gate Drive
- ESD Protected

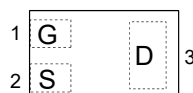
Dimensions and Pin Configuration



Circuit Diagram



DFN1006-3



Pin Configuration(Top View)

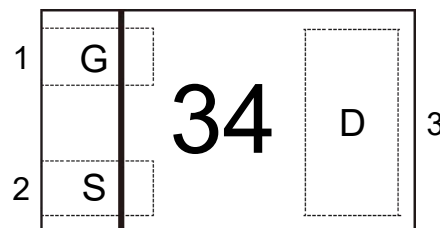
Mechanical Characteristics

- Package: DFN1006-3
- Case Material: "Green" Molding Compound
- Moisture Sensitivity: Level 1 per J-STD-020
- Marking Information: See Below

Applications

- Load/Power Switching
- Interfacing Switching
- Battery Management for Ultra Small Portable Electronics
- Logic Level Shift

Marking Information



34 = Device Marking Code

Ordering Information

Part Number	Shipping	Reel Size
PM02N01P1	10000/Tape & Reel	7 inch

Absolute Maximum Ratings^(Note1) (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	20	V
Gate-Source Voltage	V _{GS}	±10	V
Continuous Drain Current ^(Note5)	I _D	1	A
Pulsed Drain Current ^(Note3)	I _{DM}	1.8	A
Power Dissipation	P _D	0.2	W
Thermal Resistance from Junction to Ambient ^(Note2,4)	R _{θJA}	625	°C/W
Junction Temperature	T _J	150	°C
Storage Temperature	T _{STG}	-50~ +150	°C

Notes:

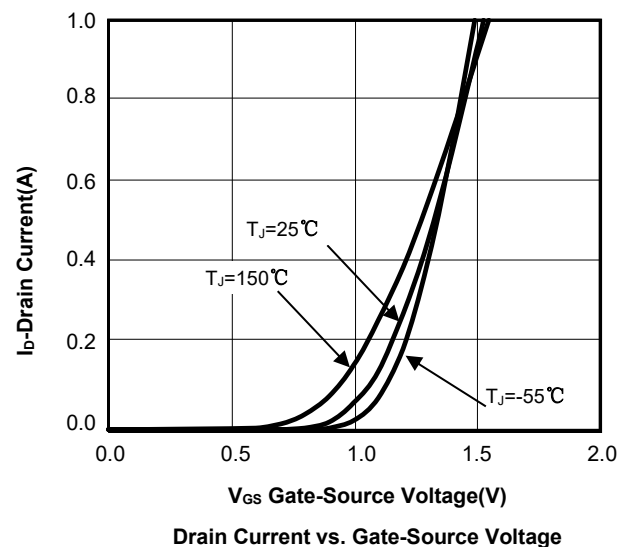
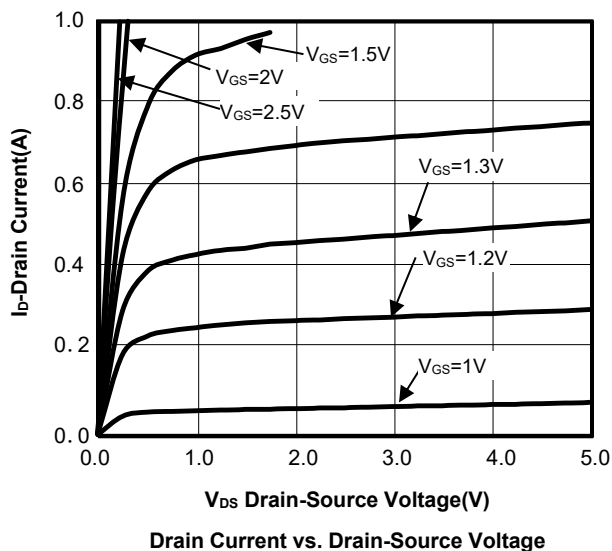
- Conditions out of those ranges listed in “absolute maximum ratings” may cause permanent damages to the devices. In spite of the limits above, functional operation conditions of the device should be within the ranges listed in “recommended operating conditions”. Exposure to absolute-maximum-rated conditions for prolonged periods may affect device reliability.
- Mounted on FR-4 material with 1inch², 2oz. Copper.
- Test condition 10us 25°C
- Thermal resistance from junction to ambient is highly dependent on PCB layout
- Rated according to R_{θJA}

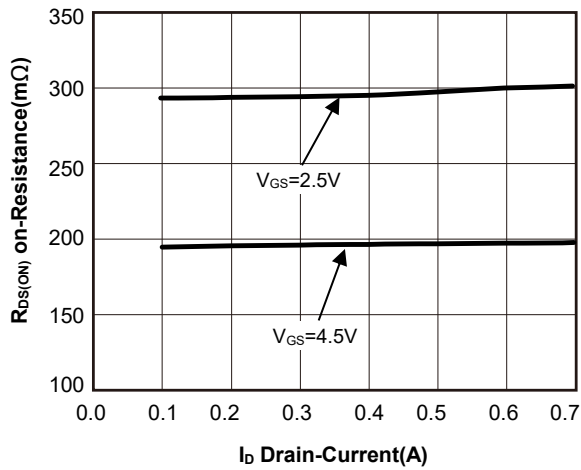
Electrical Characteristics (T_A=25°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	20	-	-	V
Zero gate voltage drain current	I _{DSS}	V _{DS} = 20V, V _{GS} = 0V	-	-	1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ±10V, V _{DS} = 0V	-	-	±10	μA
Gate threshold voltage	V _{GS(TH)}	V _{DS} = V _{GS} , I _D = 250μA	0.4	0.7	1.0	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} = 4.5V, I _D = 0.5A		195	250	mΩ
		V _{GS} = 2.5V, I _D = 0.5A		290	350	

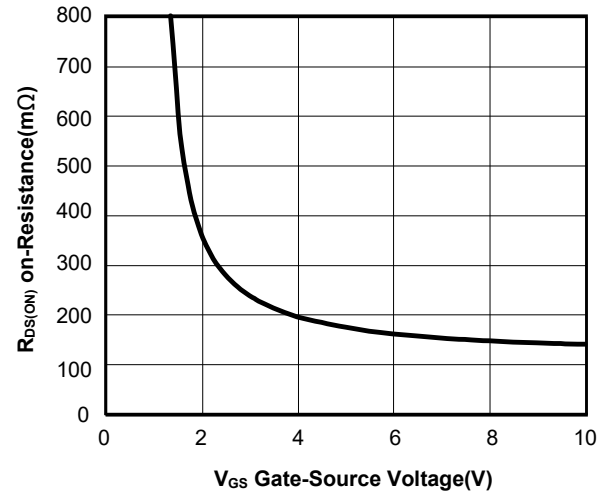
Diode forward voltage	V _{SD}	I _S =0.8A,V _{GS} =0V	-	-	1.2	V
Dynamic characteristics						
Input Capacitance	C _{iss}	V _{DS} =10V,V _{GS} =0V, f=1MHz	-	43.6	-	pF
Output Capacitance	C _{oss}		-	6.8	-	
Reverse Transfer Capacitance	C _{rss}		-	4.6	-	
Switching Characteristics						
Gate Total Charge	Q _g	V _{GS} =4.5V, V _{DS} =10V, I _D =0.15A	-	1.2	-	nC
Gate-Source charge	Q _{gs}		-	0.2	-	
Gate-Drain charge	Q _{gd}		-	0.25	-	
Turn-on delay time	t _{d(on)}	V _{GS} =4.5V,V _{DS} =10V, I _D =0.5A,R _L =10Ω	-	5.5	-	ns
Turn-on rise time	t _r		-	4.5	-	
Turn-off delay time	t _{d(off)}		-	19	-	
Turn-off fall time	t _f		-	9	-	

Typical Characteristics ($T_A=25^\circ C$ unless otherwise specified)

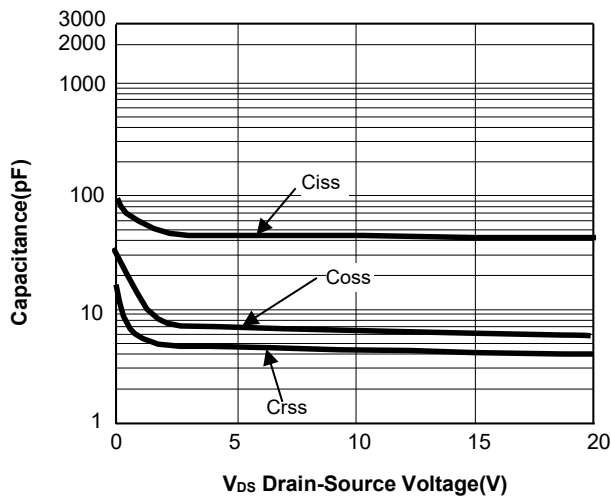




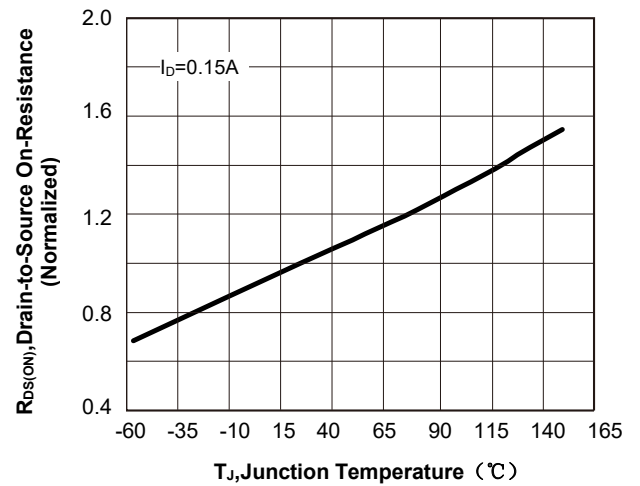
$R_{DS(on)}$ On-Resistance vs. Drain-Current



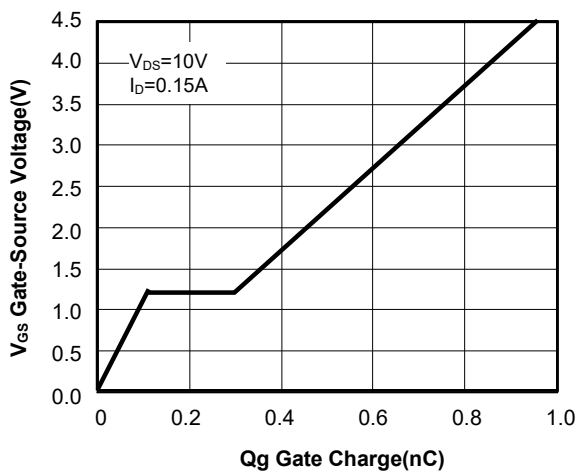
$R_{DS(on)}$ On-Resistance vs. Gate-Source Voltage



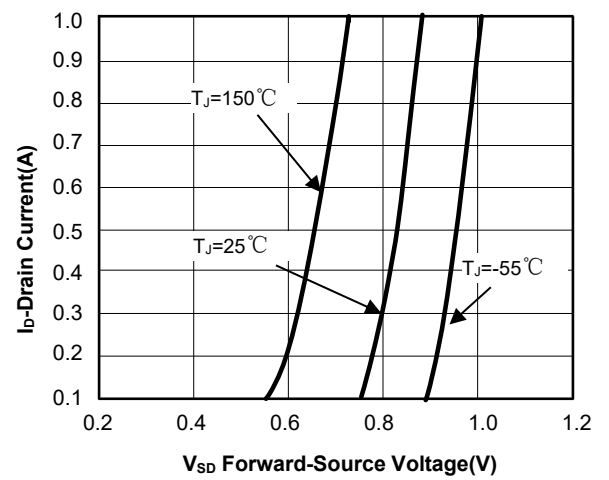
Capacitance vs. Drain-Source Voltage



Normalized On-Resistance vs. Temperature

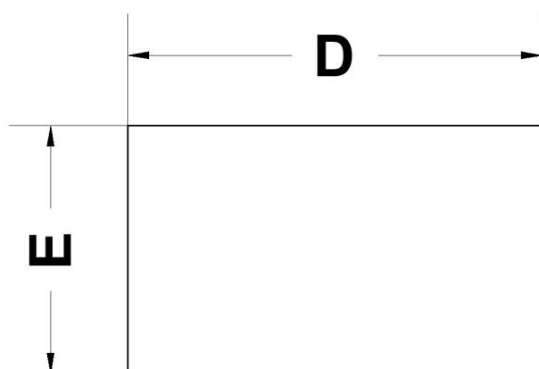


Drain Current vs. Drain-Source Voltage

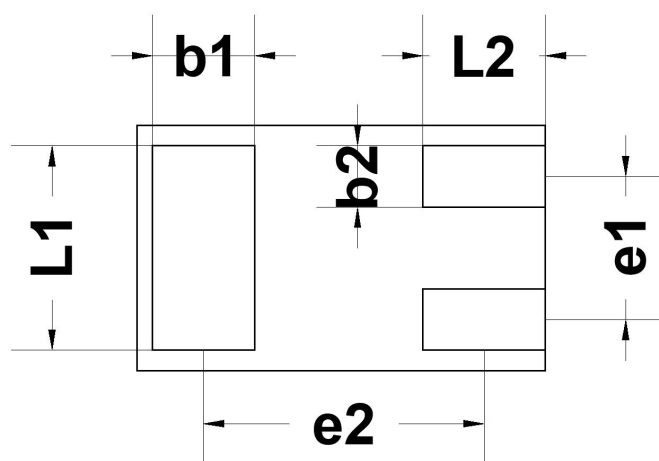


Drain Current vs. Forward-Source Voltage

DFN1006-3 Package Outline Drawing

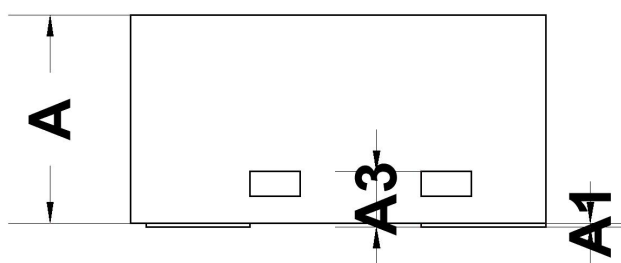


Top View



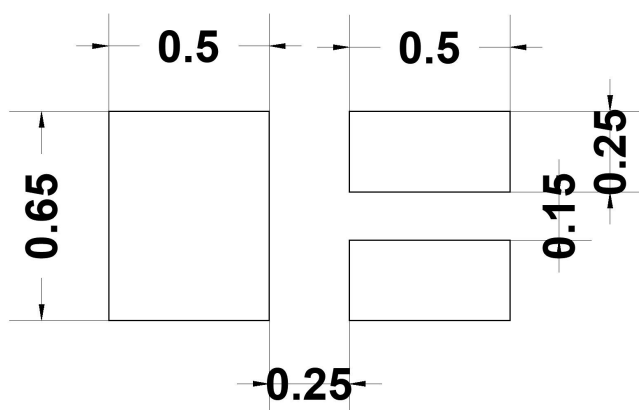
Bottom View

Symbol	Dimensions in Millimeters		
	Min.	Typ.	Max.
A	0.45	0.50	0.55
D	0.95	1.00	1.05
E	0.55	0.60	0.65
b1	0.20	0.25	0.30
b2	0.10	0.15	0.20
L1	0.45	0.50	0.55
L2	0.25	0.30	0.35
e1	0.350 BSC		
e2	0.675 BSC		
A1	0.00	---	0.015
A3	0.119	---	0.15



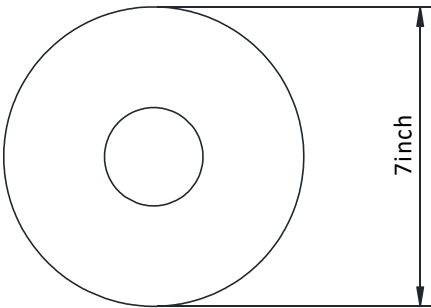
Side View

Recommended PCB Layout (Unit: mm)

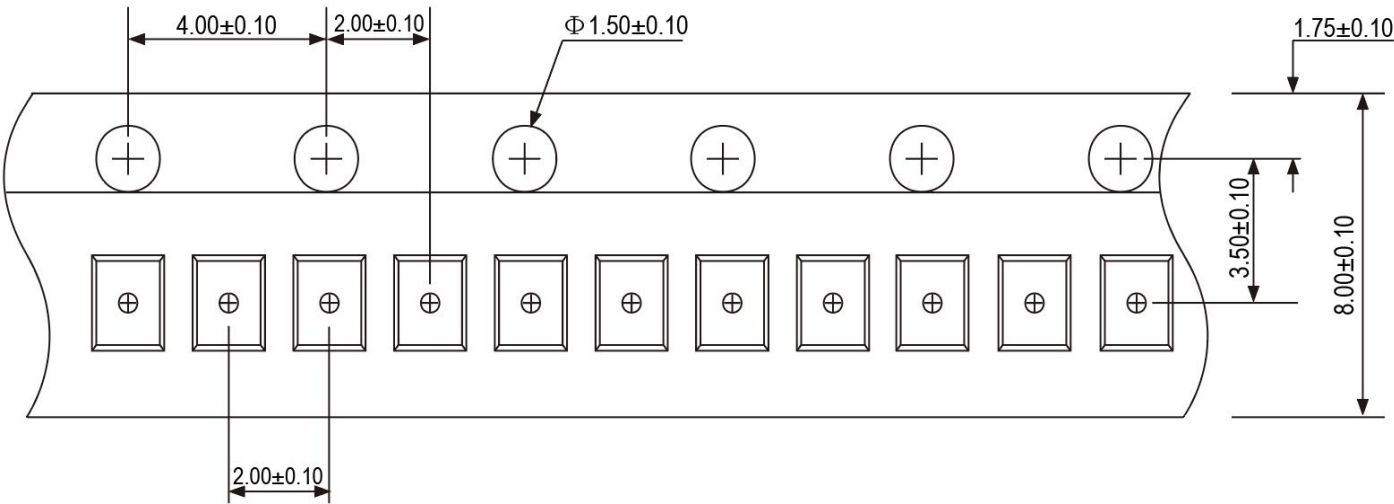


TAPE AND REEL INFORMATION

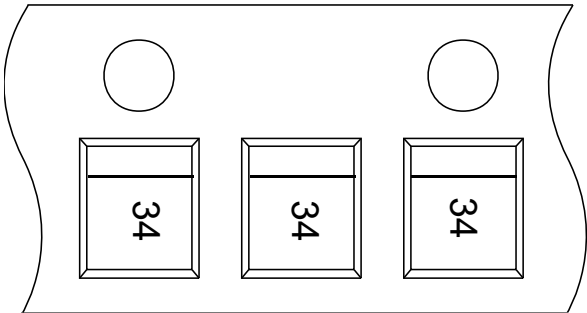
Reel Dimensions



Tape Dimensions



Unit:mm




User Direction of Feed

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