

Dual N-Channel, 18V, 25A, DFN3x3-8L, Power MOSFET

MOSFET Product Summary

V_{DS}	$R_{DS(ON)}$ (Typ.)	I_D
18V	3.3m Ω @4.5V	25A
	5.3m Ω @2.5V	
	11.6m Ω @1.8V	

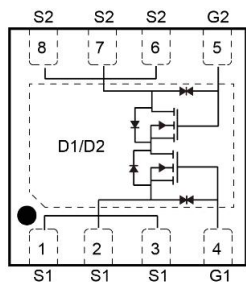
Description

The PM2002A is Dual N-Channel enhancement MOS Field Effect Transistor, which is suitable for use in DC-DC conversion, power switch and charging circuit.

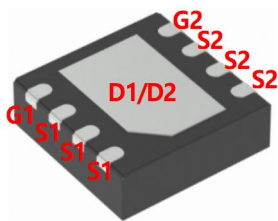
Features

- Trench Technology
- Super high density cell design
- Excellent ON resistance
- Extremely Low Threshold Voltage

Dimensions and Pin Configuration



Pin configuration(Top view)



Bottom View

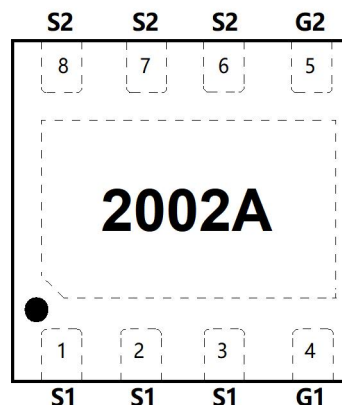
Mechanical Characteristics

- Package: DFN3x3-8L
- Case Material: "Green" Molding Compound
- Marking Information: See Below

Applications

- DC-DC Converter
- Load/Power Switching for portable device
- Power supply converters circuit

Marking Information



2002A = Device Marking Code

Ordering Information

Part Number	Shipping	Reel Size
PM2002A	5000/Tape & Reel	13 inch

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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	18	V
Gate-Source Voltage	V_{GS}	± 10	V
Continuous Drain Current ^(Note1)	I_D	25	A
Pulsed Drain Current ^(Note2)	I_{DM}	100	A
Power Dissipation	P_D	2	W

Thermal Resistance from Junction to Ambient ^(Note3)	$R_{\theta JA}$	Typical	60	°C/W
		Max	75	°C/W
Junction Temperature	T_J	-55~ +150		°C
Storage Temperature	T_{STG}	-55~ +150		°C

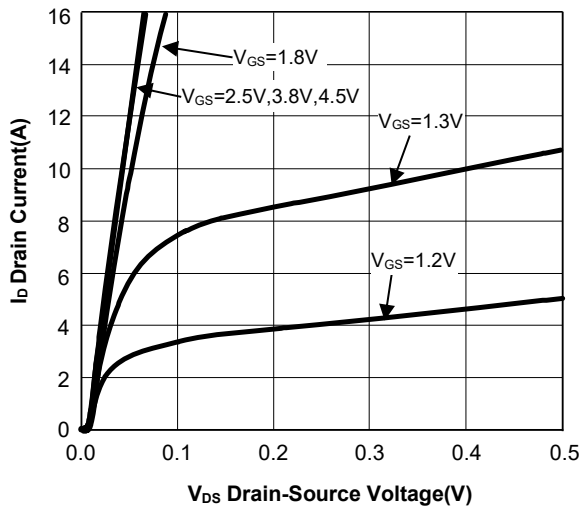
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-to-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	18	-	-	V
Zero Gate voltage Drain Current	I _{DSS}	V _{DS} =18V, V _{GS} =0V	-	-	1	μA
Gate-to-Source 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	0.65	1.0	V
Drain-to-Source On-Resistance	R _{DS(ON)}	V _{GS} =4.5V, I _D =5A	-	3.3	5.5	mΩ
		V _{GS} =3.8V, I _D =5A	-	3.6	6.5	
		V _{GS} =2.5V, I _D =3A	-	5.3	8.0	
Diode Forward Voltage	V _{SD}	I _S =10A, V _{GS} =0V	-	0.8	1.25	V
Dynamic Characteristics						
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =10V, f=1MHz	-	2090	-	pF
Output Capacitance	C _{oss}		-	310	-	
Reverse Transfer Capacitance	C _{rss}		-	276	-	
Switching Characteristics						
Turn-On Delay Time	t _{d(on)}	V _{DS} =10V, V _{GS} =5V, R _G =3Ω, R _L =1Ω	-	14.2	-	nS
Turn-On Rise Time	t _r		-	38	-	
Turn-Off Delay Time	t _{d(off)}		-	75	-	
Turn-Off Fall Time	t _f		-	64	-	
Gate Total Charge	Q _g	V _{GS} =4.5V, V _{DS} =10V, I _D =5A	-	28	-	nC
Gate-Source Charge	Q _{gs}		-	3.1	-	
Gate-Drain Charge	Q _{gd}		-	6.9	-	

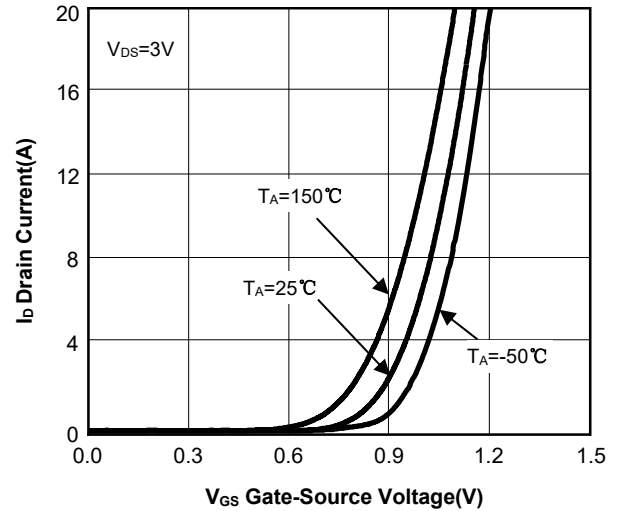
Notes:

1. This current is chip limited, which is calculated based on $R_{\theta JA}$.
2. This current is calculated on single pulse with 10 μs Pulse & Duty Cycle = 1%.
3. The value of $R_{\theta JA}$, which is steady state, is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, with $T_A = 25^{\circ}\text{C}$.

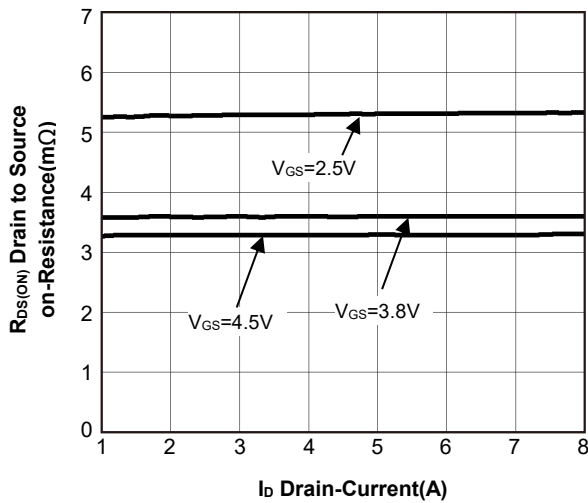
Typical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise specified)



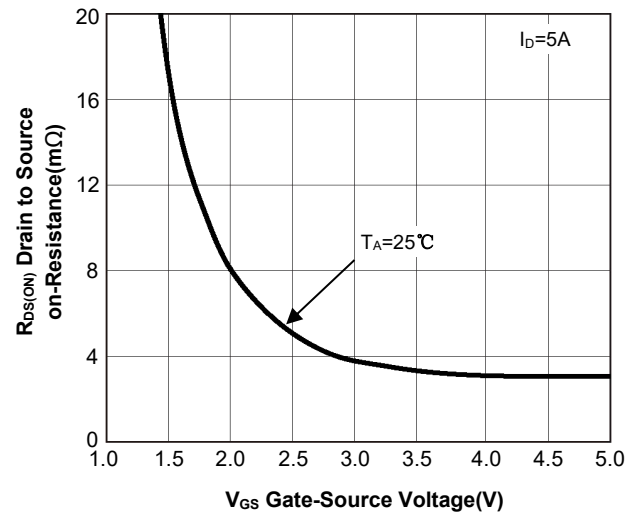
Drain Current vs. Drain-Source Voltage



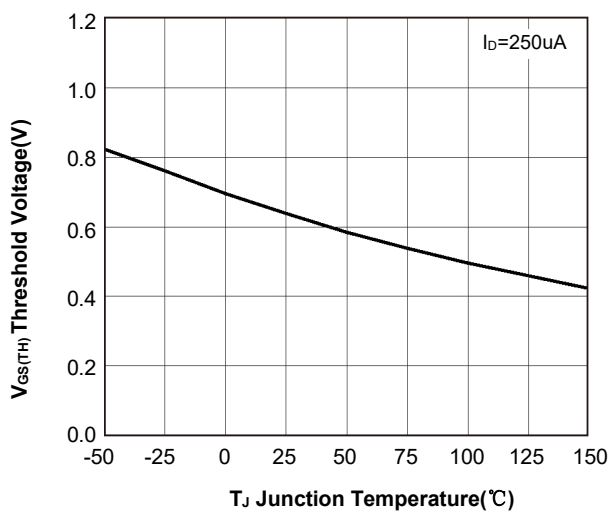
Drain Current vs. Gate-Source Voltage



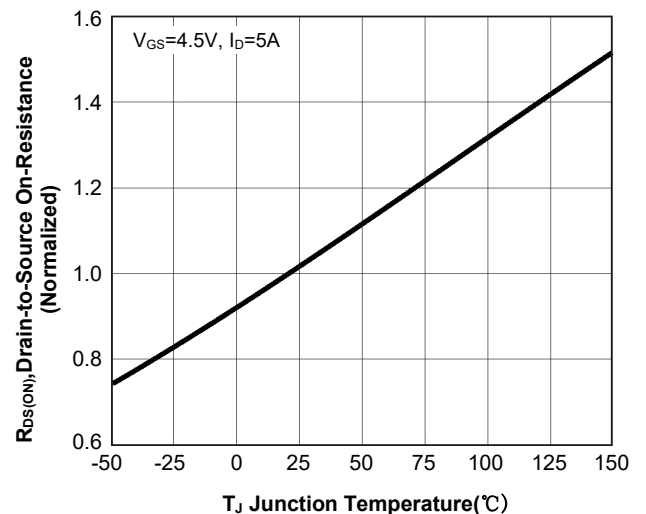
On-Resistance vs. Drain-Current



On-Resistance vs. Gate-Source Voltage

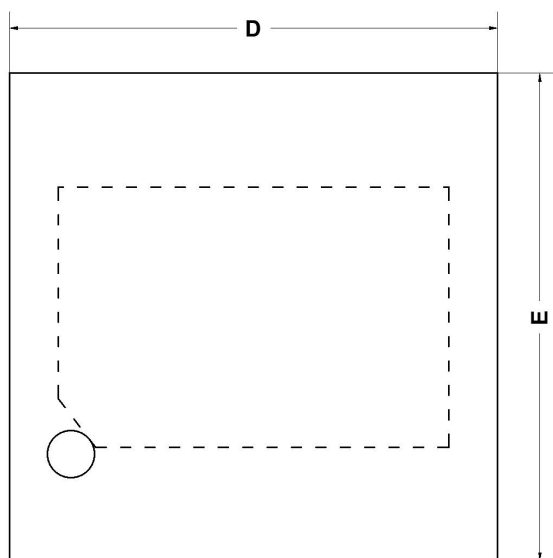


Threshold Voltage vs. Temperature

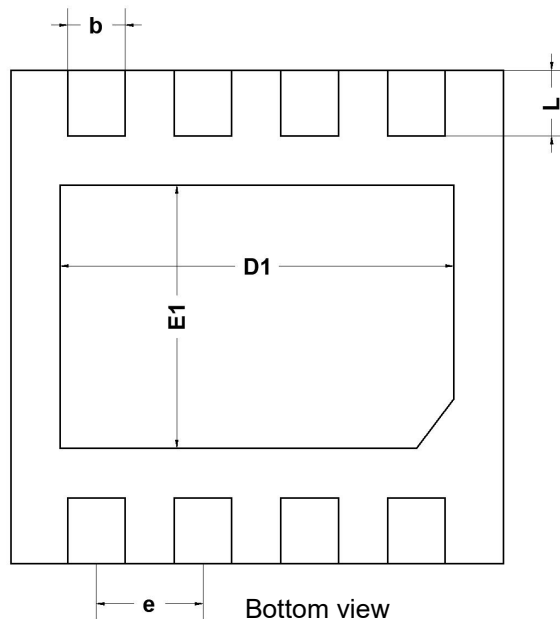


Normalized On-Resistance vs. Temperature

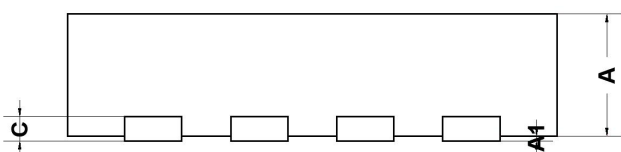
DFN3*3-8L Package Outline Drawing



Top view



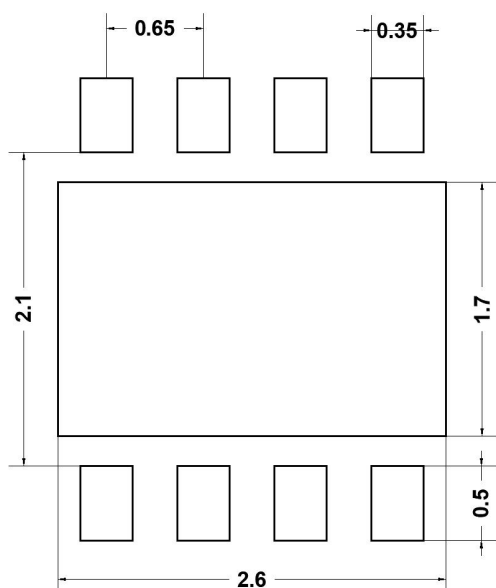
Bottom view



Side view

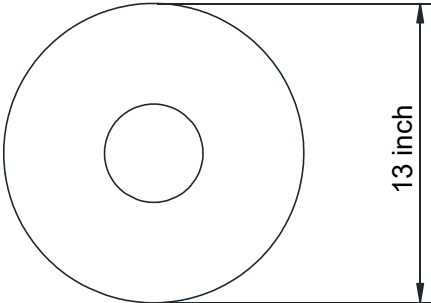
Symbol	Dimensions in Millimeters		
	Min.	Nom.	Max.
A	0.70	0.75	0.80
A1	0.00	0.03	0.05
b	0.25	0.35	0.40
c	0.152 REF.		
D	2.95	3.00	3.05
e	0.65 BSC.		
E	2.95	3.00	3.05
D1	2.30	2.40	2.55
E1	1.50	1.60	1.75
L	0.35	0.40	0.45

Suggested Land Pattern

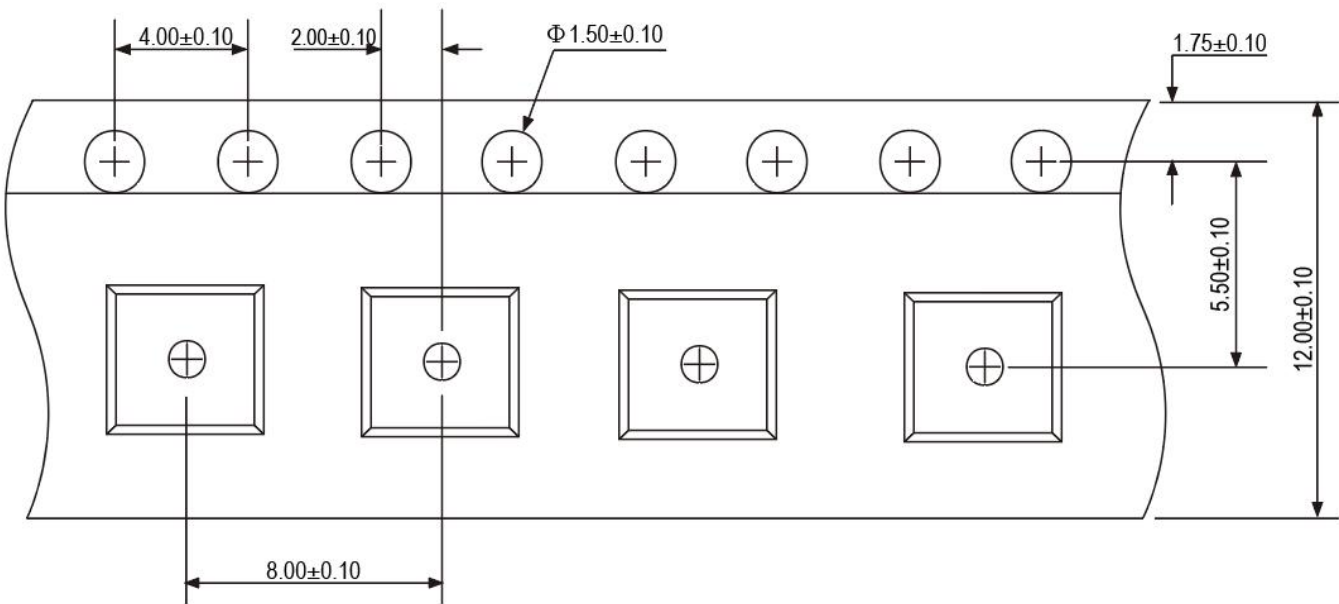


TAPE AND REEL INFORMATION

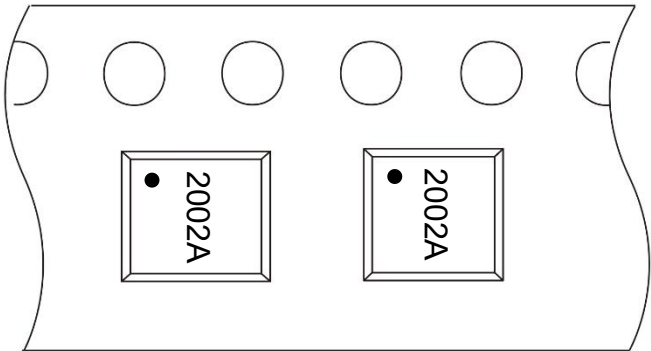
Reel Dimensions



Tape Dimensions



Unit:mm



User Direction of Feed

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