

DFN2020-6 30V 9mΩ 12A N-Channel MOSFET

MOSFET Product Summary

$V_{(BR)DSS}$	$R_{DS(on)}$ (Typ.)	I_D
30V	9mΩ @4.5V	12A
	13mΩ @2.5V	

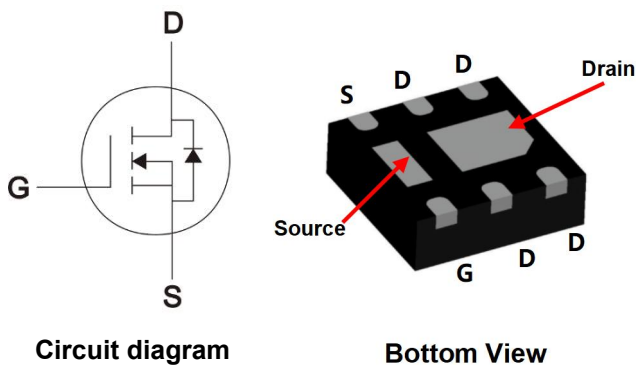
Description

The PM03N12D226A is N-Channel enhancement MOS Field Effect Transistor, which uses advanced trench technology and provides excellent $R_{DS(ON)}$ with low gate charge. This device is suitable for use in DC-DC conversion, power switch and charging circuit.

Features

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

Dimensions and Pin Configuration



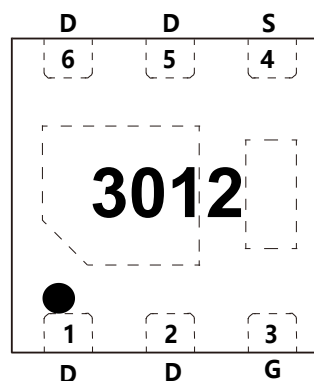
Mechanical Characteristics

- Package: DFN2020-6
- Case Material: “Green” Molding Compound
- Marking Information: See Below

Applications

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

Marking Information



Ordering Information

Part Number	Shipping	Reel Size
PM03N12D226A	3000/Tape & Reel	7 inch

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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current ^(Note1)	I_D	12	A
Pulsed Drain Current ^(Note2)	I_{DM}	40	A
Power Dissipation	P_D	2.2	W

Thermal Resistance from Junction to Ambient ^(Note3)	$R_{\theta JA}$	58	°C/W
Junction Temperature	T_J	-55~ +150	°C
Storage Temperature	T_{STG}	-55~ +150	°C

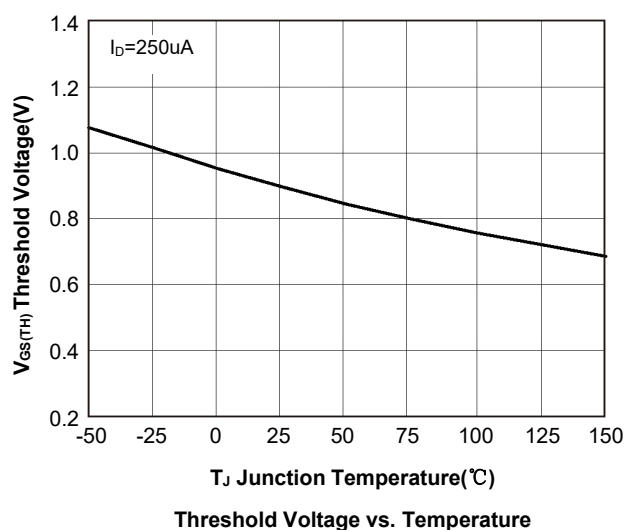
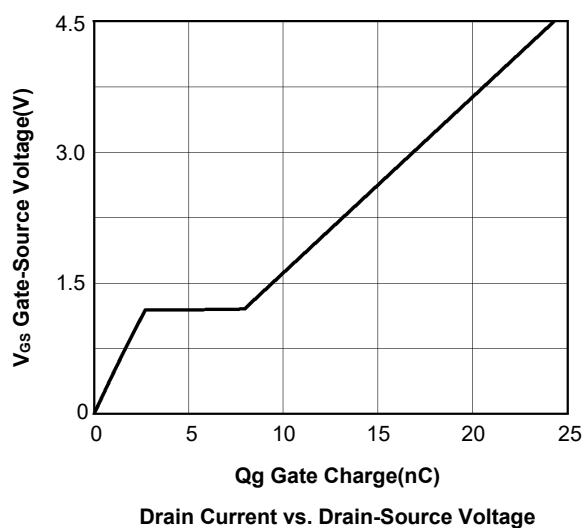
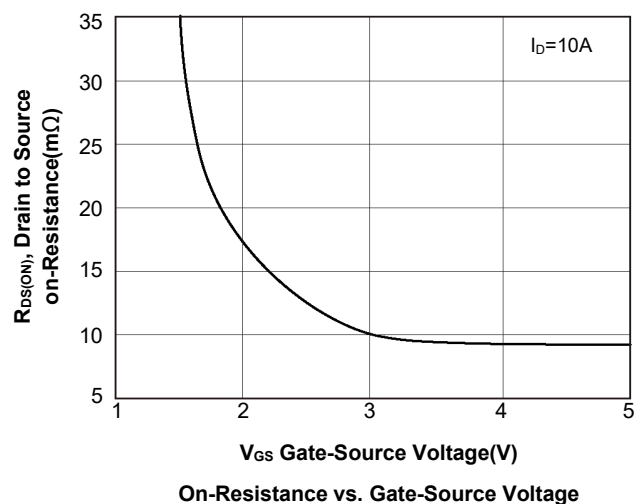
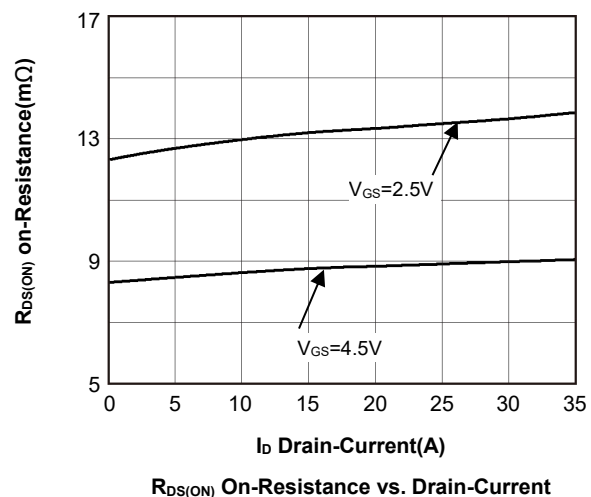
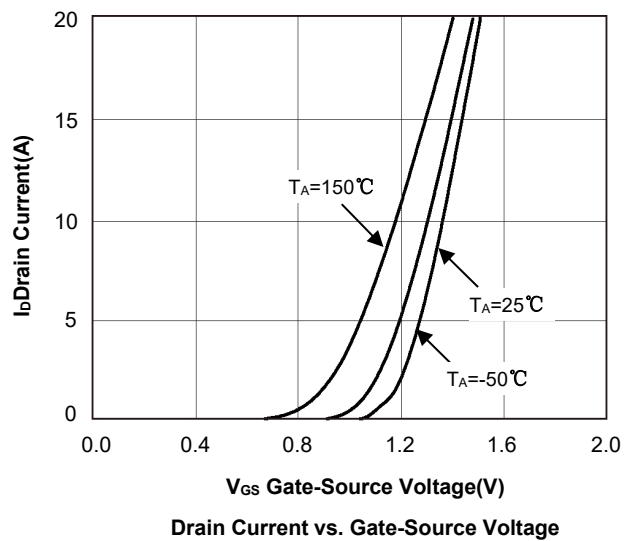
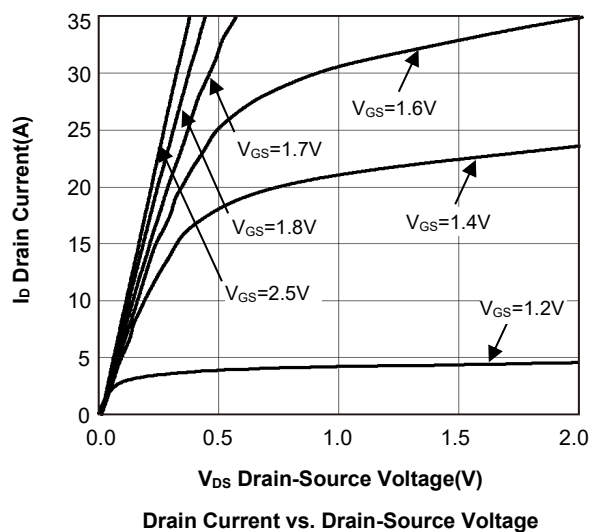
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-to-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	30	-	-	V
Zero Gate voltage Drain Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V	-	-	1	μA
Gate-to-Source Leakage Current	I _{GSS}	V _{GS} =±12V, V _{DS} =0V	-	-	±100	nA
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250μA	0.5	0.9	1.3	V
Drain-to-Source On-Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =10A	-	8	13	mΩ
		V _{GS} =4.5V, I _D =10A	-	9	15	
		V _{GS} =2.5V, I _D =10A	-	13	17	
Diode Forward Voltage	V _{SD}	I _S =10A, V _{GS} =0V	-	0.7	1.25	V
Dynamic Characteristics						
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =15V, f=1MHz	-	1486	-	pF
Output Capacitance	C _{oss}		-	137	-	
Reverse Transfer Capacitance	C _{rss}		-	108	-	
Turn-On Delay Time	t _{d(on)}	V _{GS} =4.5V, V _{DS} =15V, R _G =6Ω, I _D =8A	-	13	-	nS
Turn-On Rise Time	t _r		-	40	-	
Turn-Off Delay Time	t _{d(off)}		-	83	-	
Turn-Off Fall Time	t _f		-	67	-	
Gate Charge Characteristics						
Gate Total Charge	Q _g	V _{GS} =4.5V, V _{DS} =15V, I _D =8A	-	24	-	nC
Gate-Source Charge	Q _{gs}		-	2.7	-	
Gate-Drain Charge	Q _{gd}		-	6.5	-	

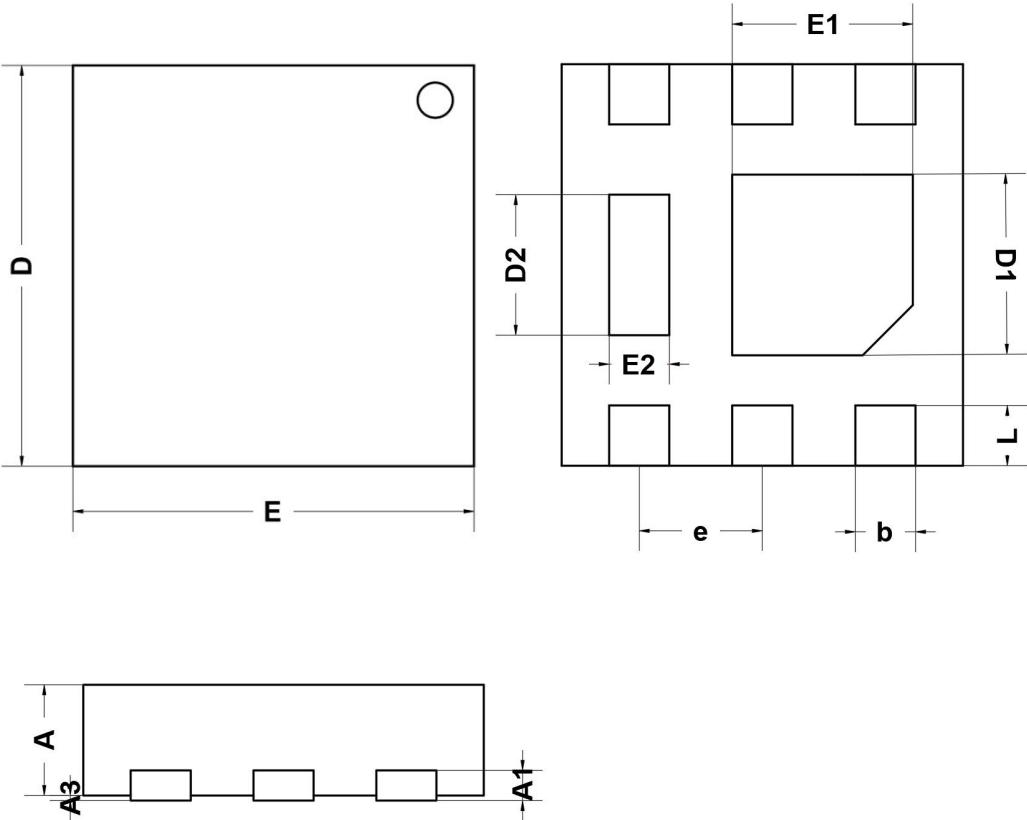
Notes:

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)

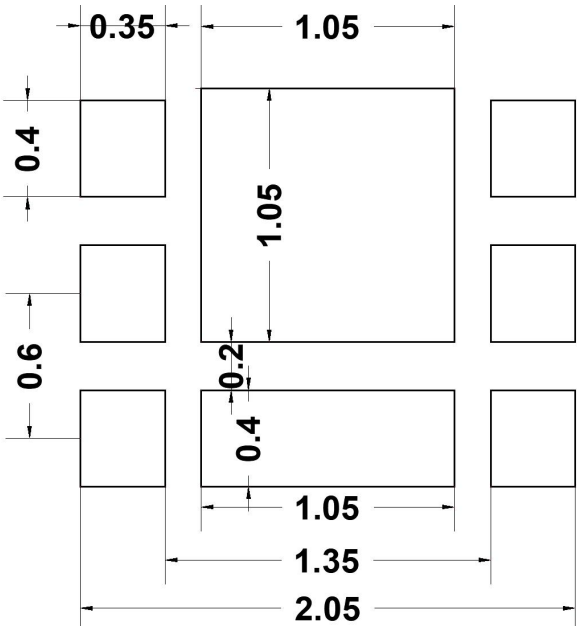


DFN2020-6 Package Outline Drawing



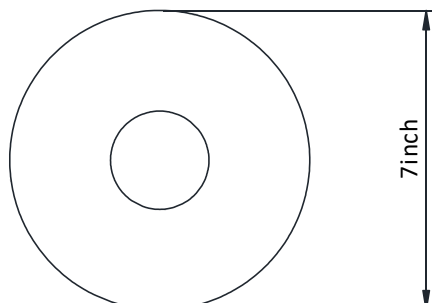
Symbol	Dimensions In Millimeters		
	Min.	Typ.	Max.
A	0.5	0.55	0.6
A1	0.15REF		
A3	0.00	0.025	0.05
D	1.95	2.00	2.05
E	1.95	2.00	2.05
D1	0.875	0.90	0.925
E1	0.875	0.90	0.925
D2	0.675	0.70	0.725
E2	0.275	0.30	0.325
L	0.25	0.30	0.35
b	0.3REF		
e	0.65BSC		

Suggested Land Pattern (Unit: mm)

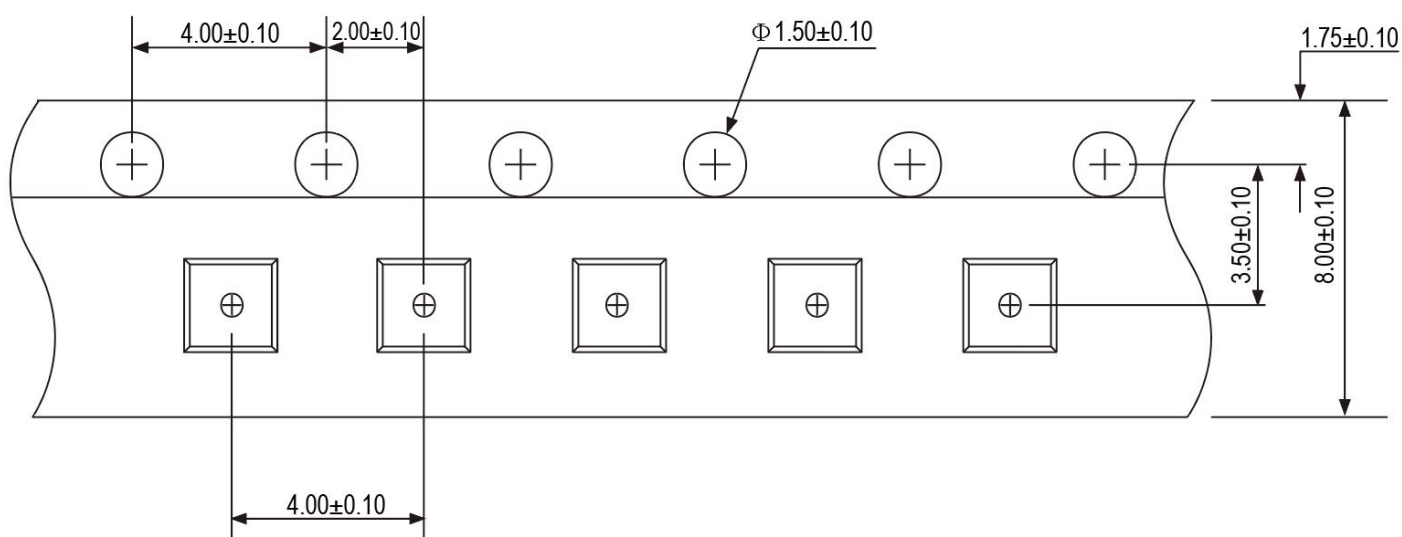


TAPE AND REEL INFORMATION

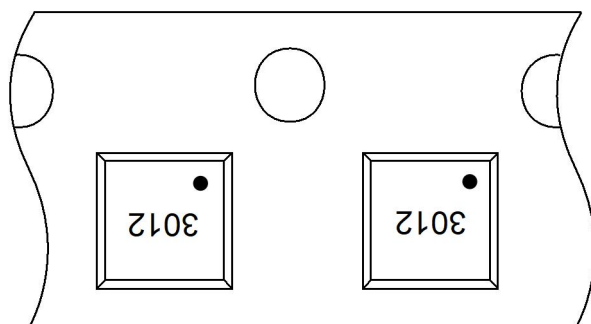
Reel Dimensions



Tape Dimensions



Unit:mm



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User Direction of Feed

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