

-20V P-Channel MOSFET

MOSFET Product Summary

V_{DS}	$R_{DS(on)}$ (Typ.)	I_D
-20V	15mΩ @ $V_{GS}=-4.5V$	-12A
	19mΩ @ $V_{GS}=-2.5V$	

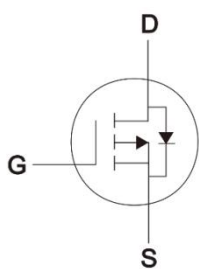
Description

The PM30P02D226 uses advanced Trench technology and designs to provide excellent $R_{DS(on)}$ with low gate charge. It can be used in a wide variety of applications. The package form is DFN2020-6, which accord with the RoHS standard and Halogen Free standard.

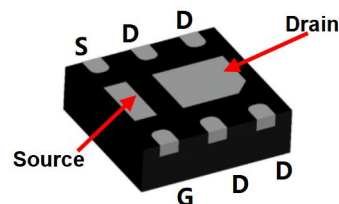
Features

- Low Gate Charge and $R_{DS(on)}$
- Lead free product is acquired
- High Power and current handing capability

Dimensions and Pin Configuration



Circuit diagram



Bottom View

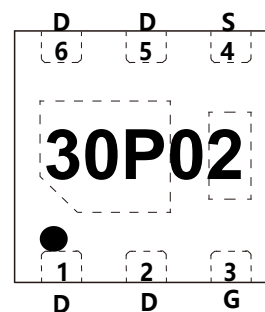
Mechanical Characteristics

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

Applications

- DC-DC converter
- Load Switch
- Power Management
- Apply for high-frequency switching and synchronous rectification

Marking Information



30P02 = Device Marking Code

Ordering Information

Part Number	Shipping	Reel Size
PM30P02D226	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}	-20	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current	I_D	-12	A

Pulsed Drain Current ^(note1)	I_{DM}	-48	A
Power Dissipation	P_D	2.2	W
Thermal Resistance from Junction to Ambient @Steady State	$R_{\theta JA}$	56	°C/W
Junction Temperature	T_J	-55~ +150	°C
Storage Temperature	T_{STG}	-55~ +150	°C

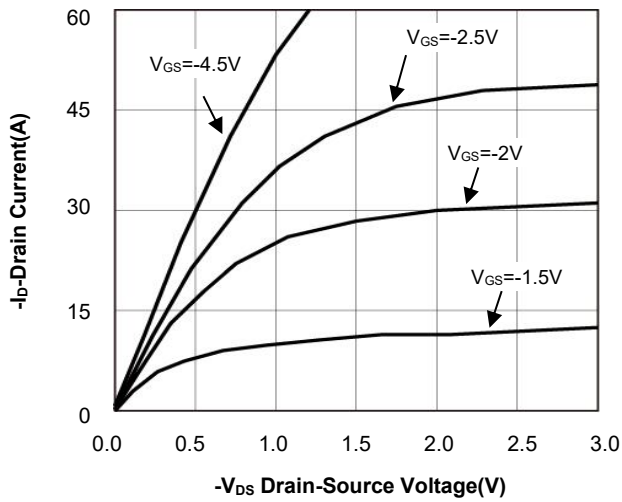
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	BV_{DSS}	$V_{GS} = 0V, I_D = -250\mu A$	-20			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = -20V, V_{GS} = 0V$	-	-	-1	μA
Gate-source leakage current	I_{GSS}	$V_{GS} = \pm 12V, V_{DS} = 0V$	-	-	± 100	nA
Gate threshold voltage	$V_{GS(TH)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.5	-0.7	-1.0	V
Drain-source on-state resistance	$R_{DS(ON)}$	$V_{GS} = -4.5V, I_D = -6A$	-	15	20	m Ω
		$V_{GS} = -2.5V, I_D = -4A$	-	19	30	
Diode Forward Voltage	V_{SD}	$I_S = -6A, V_{GS} = 0V$	-	-0.8	-1.25	V
Dynamic characteristics						
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = -10V,$ $f = 1MHz$	-	1980	-	pF
Output Capacitance	C_{oss}		-	243	-	
Reverse Transfer Capacitance	C_{rss}		-	226	-	
Switching Characteristics						
Turn-on delay time	$t_{d(on)}$	$V_{GS} = -4.5V, V_{DS} = -10V,$ $R_L = 2\Omega, R_{GEN} = 3\Omega$	-	9	-	nS
Turn-on Rise time	t_r		-	28	-	
Turn-off delay time	$t_{d(off)}$		-	24	-	
Turn-off Fall time	t_f		-	7	-	
Gate Total Charge	Q_g	$V_{GS} = -4.5V, V_{DS} = -10V,$ $I_D = -5A$	-	15	-	nC
Gate-Source charge	Q_{gs}		-	2.5	-	
Gate-Drain charge	Q_{gd}		-	4.3	-	

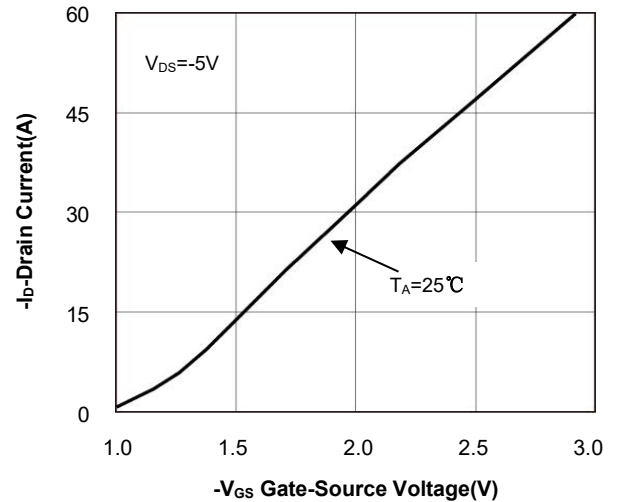
Notes:

1. Repetitive rating; pulse width limited by maximum junction temperature.

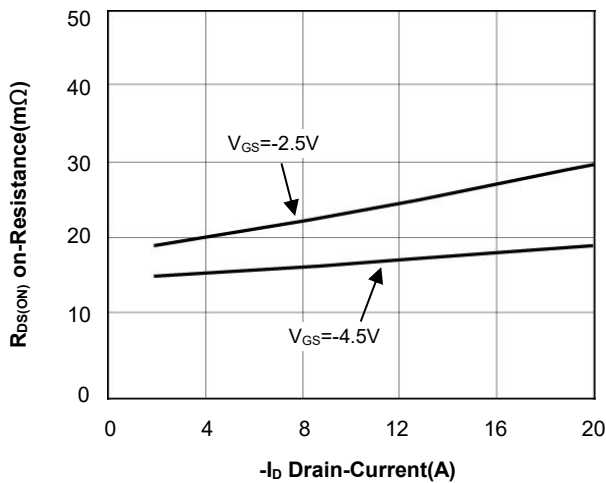
Typical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise specified)



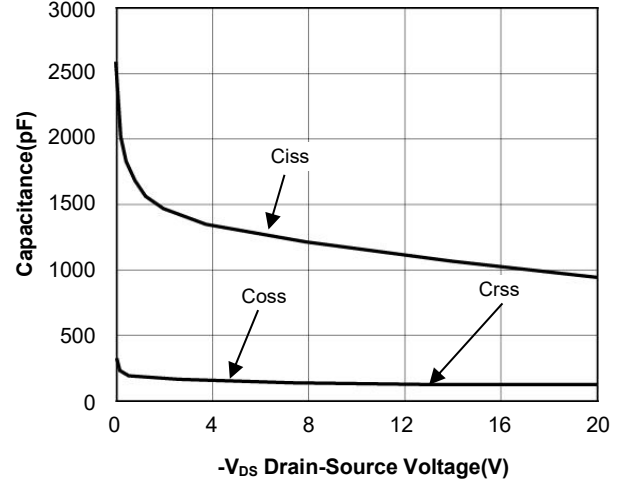
Drain Current vs. Drain-Source Voltage



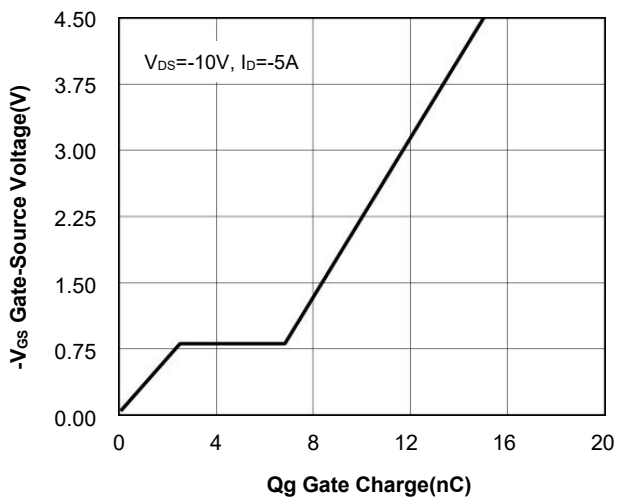
Drain Current vs. Gate-Source Voltage



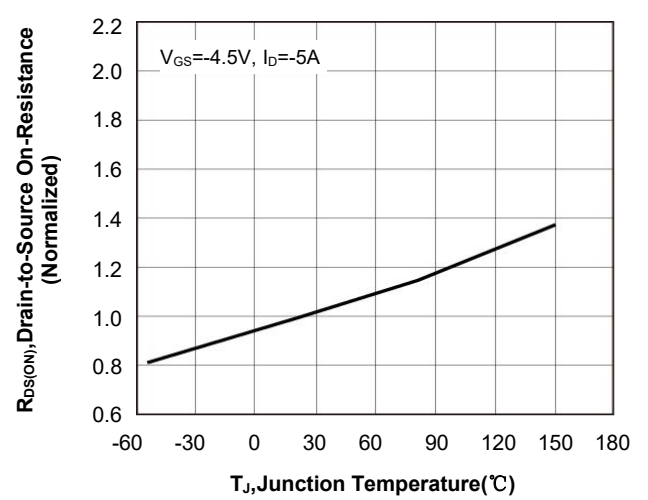
$R_{DS(ON)}$ On-Resistance vs. Drain-Current



Capacitance vs. Drain-Source Voltage

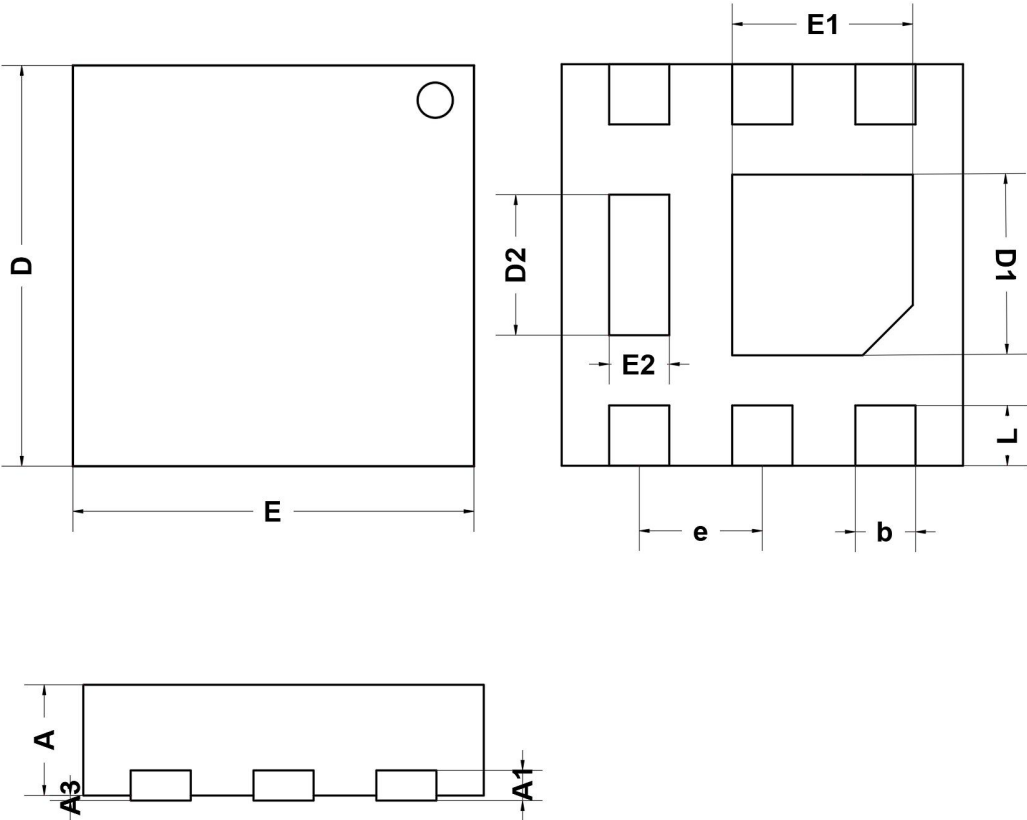


Drain Current vs. Drain-Source Voltage



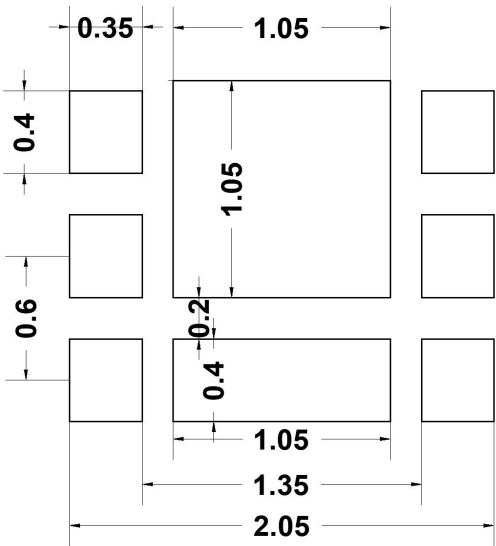
Normalized On-Resistance vs. Temperature

DFN2020-6 Package Outline Drawing



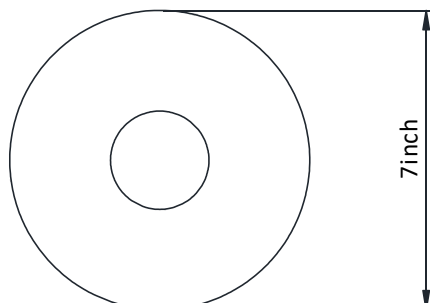
Symbol	Dimensions In Millimeters		
	Min.	Typ.	Max.
A	0.5	0.55	0.6
A1	0.15REF		
A3	0.00	0.025	0.05
D	1.95	2.00	2.05
E	1.95	2.00	2.05
D1	0.875	0.90	0.925
E1	0.875	0.90	0.925
D2	0.675	0.70	0.725
E2	0.275	0.30	0.325
L	0.25	0.30	0.35
b	0.3REF		
e	0.65BSC		

Suggested Land Pattern

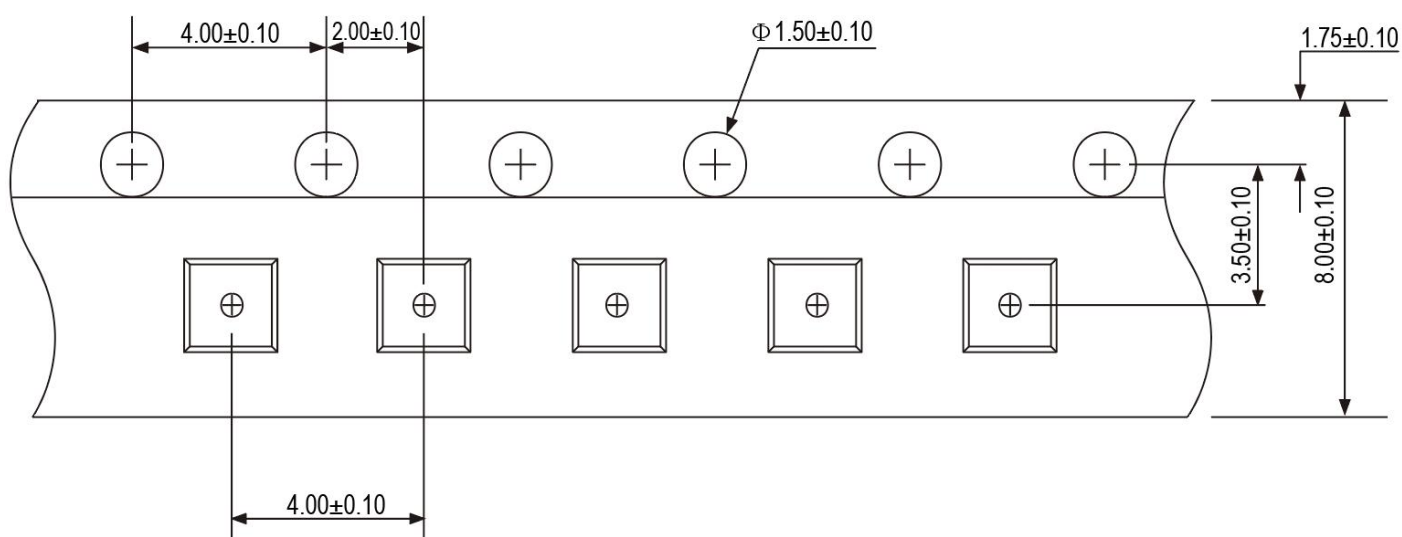


TAPE AND REEL INFORMATION

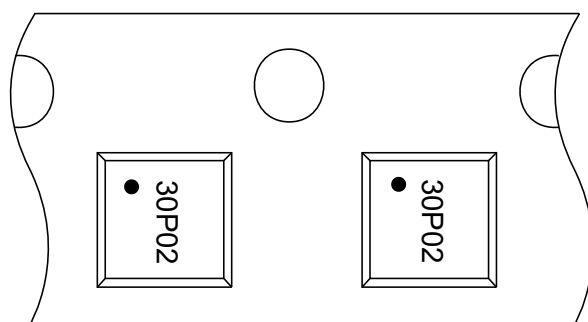
Reel Dimensions



Tape Dimensions



Unit:mm



User Direction of Feed

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