

-20V P-Channel MOSFET

MOSFET Product Summary

V_{DS}	$R_{DS(ON)}$ (Typ.)	I_D
-20V	6m Ω @ $V_{GS}=-4.5V$	-55A
	7.8m Ω @ $V_{GS}=-2.5V$	

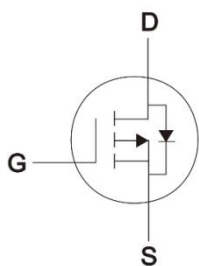
Description

The PM55P02D338 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 PDFN3.3*3.3-8L, with the RoHS standard and Halogen Free standard.

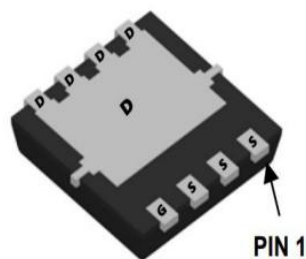
Features

- 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: PDFN3.3*3.3-8L
- 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



55P02 = Device Marking Code

Ordering Information

Part Number	Shipping	Reel Size
PM55P02D338	5000/Tape & Reel	13 inch

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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current ^(Note1)	I_D	-55	A
Pulsed Drain Current ^(Note2)	I_{DM}	-220	A

Power Dissipation ^(Note4)	P_D	6.25	W
Thermal Resistance from Junction to Ambient ^(Note3)	$R_{\theta JA}$	45	°C/W
Junction Temperature	T_J	-55~ +150	°C
Storage Temperature	T_{STG}	-55~ +150	°C

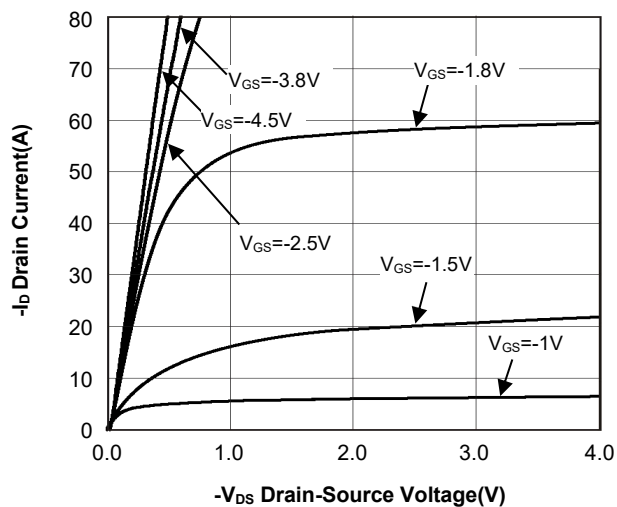
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-to-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =-250μA	-20	-	-	V
Zero Gate voltage Drain Current	I _{DSS}	V _{DS} =-20V, 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	-0.4	-0.6	-1.0	V
Drain-to-Source On-Resistance	R _{DS(ON)}	V _{GS} =-4.5V, I _D =-15A	-	6	8	mΩ
		V _{GS} =-3.8V, I _D =-12A	-	6.5	9	
		V _{GS} =-2.5V, I _D =-10A	-	7.8	10.5	
Diode Forward Voltage	V _{SD}	I _S =-20A,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	-	4159	-	pF
Output Capacitance	C _{oss}		-	1659	-	
Reverse Transfer Capacitance	C _{rss}		-	1394	-	
Switching Characteristics						
Turn-On Delay Time	t _{d(on)}	V _{GS} =-10V, V _{DS} =-10V, R _L =0.5Ω, R _{GEN} =3Ω	-	9	-	nS
Turn-On Rise Time	t _r		-	15	-	
Turn-Off Delay Time	t _{d(off)}		-	144	-	
Turn-Off Fall Time	t _f		-	48	-	
Gate Total Charge	Q _g	V _{GS} =-4.5V, V _{DS} =-10V, I _D =-20A	-	48	-	nC
Gate-Source Charge	Q _{gs}	V _{GS} =-10V, V _{DS} =-10V, I _D =-20A	-	7.2	-	
Gate-Drain Charge	Q _{gd}		-	15.5	-	

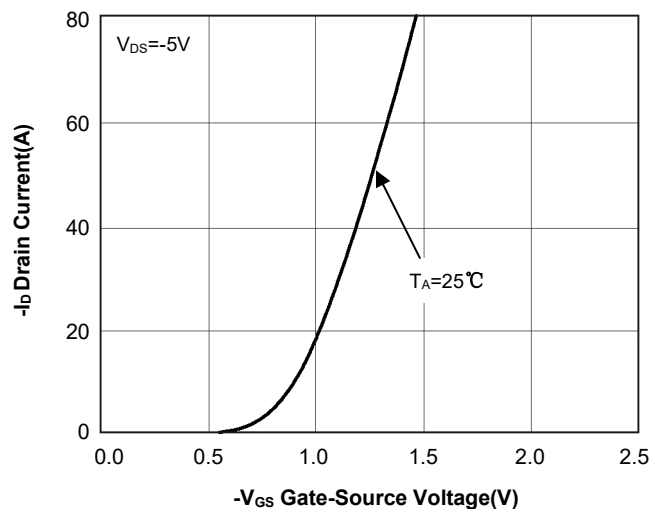
Notes:

1. This current is chip limited, which is calculated based on $R_{\theta JA}$.
2. This current is calculated on single pulse with 10 μ s 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 $T_A=25^{\circ}\text{C}$.
4. The power dissipation is based on $R_{\theta JA}$ $t \leq 10s$ value and the $T_{J(MAX)}=150^{\circ}\text{C}$. The value in any given application is determined by the user's specific board design.

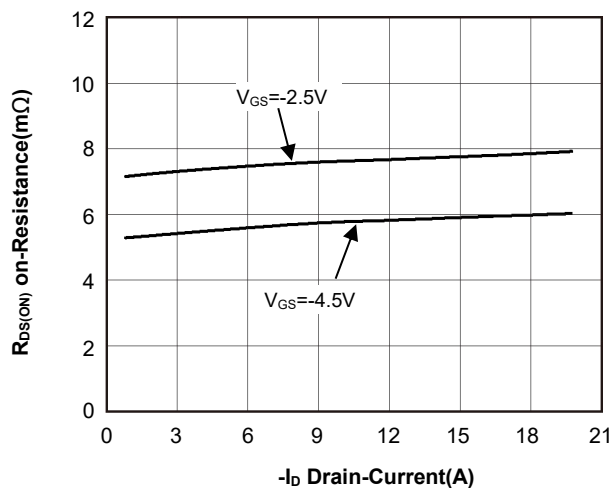
Typical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise specified)



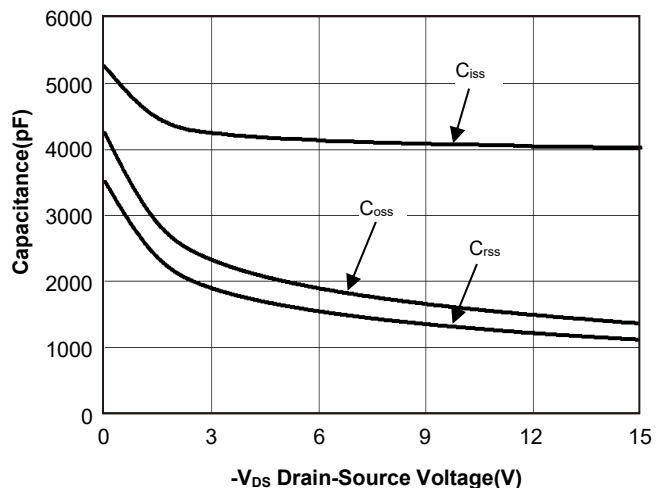
Drain Current vs. Drain-Source Voltage



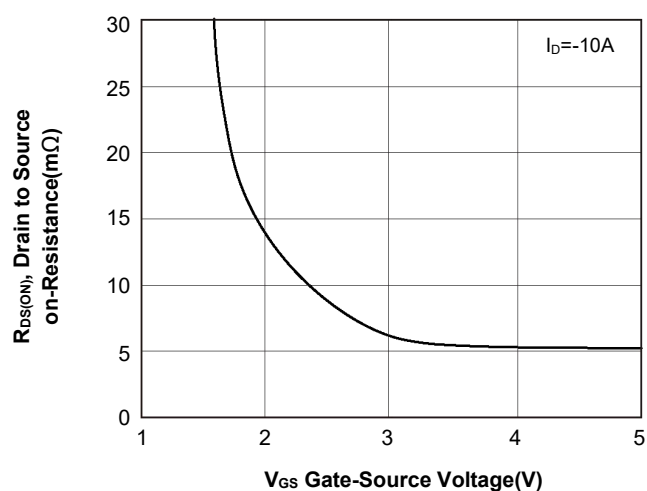
Drain Current vs. Gate-Source Voltage



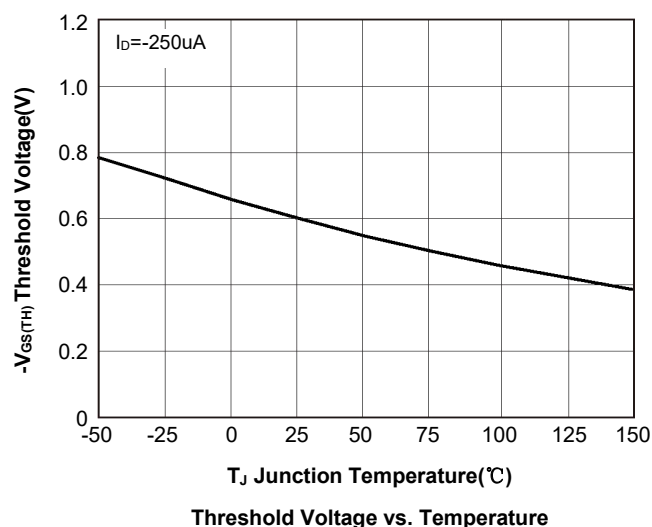
$R_{DS(on)}$ On-Resistance vs. Drain-Current



Capacitance vs. Drain-Source Voltage

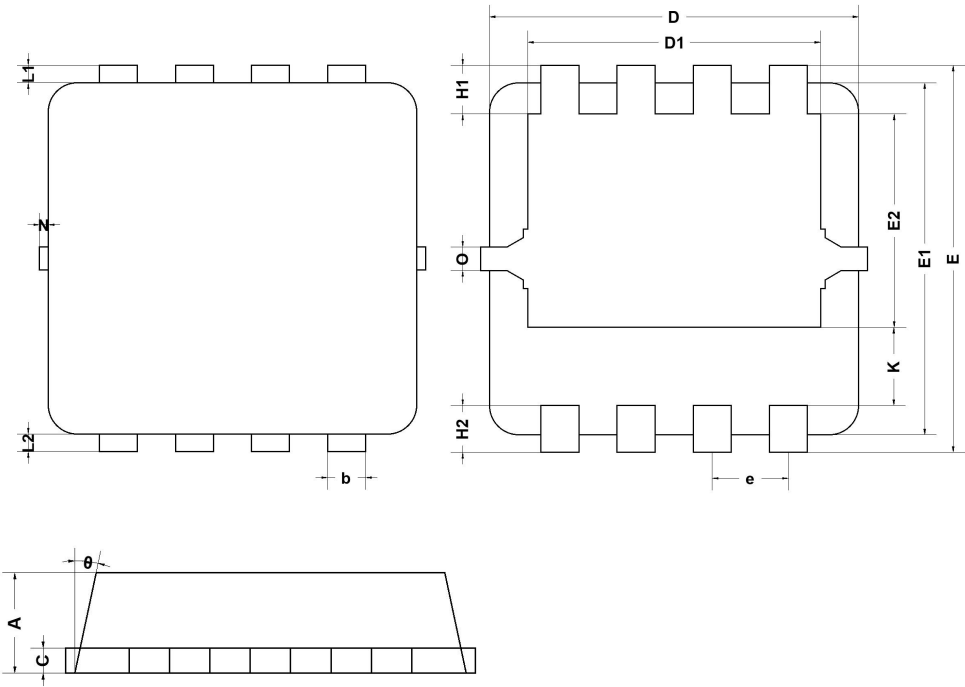


On-Resistance vs. Gate-Source Voltage



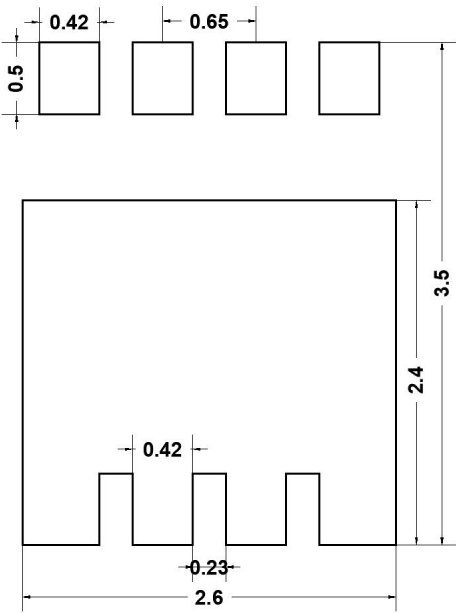
Threshold Voltage vs. Temperature

PDFN3.3*3.3-8L Package Outline Drawing



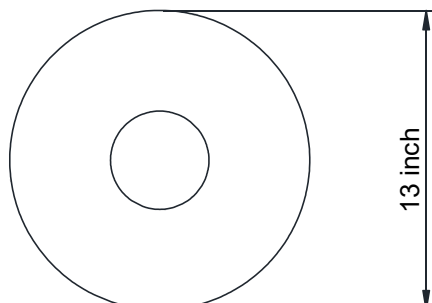
Symbol	Dimensions In Millimeters	
	Min.	Max.
A	-	0.90
b	0.25	0.40
C	0.15	0.25
D	3.05	3.25
D1	2.35	2.75
E	3.20	3.45
E1	2.90	3.20
E2	1.52	1.92
e	0.65BSC	
H1	0.31	0.52
H2	0.25	0.50
K	0.67	0.96
L1/L2	0.05	0.23
θ	8°	13°
N	0.00	0.15
O	0.2REF	

Suggested Land Pattern (Unit: mm)

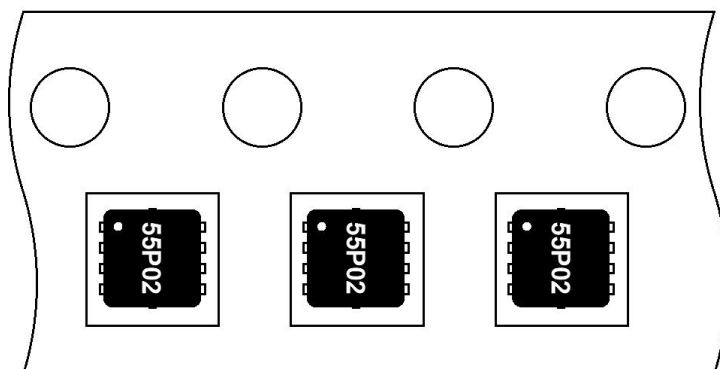
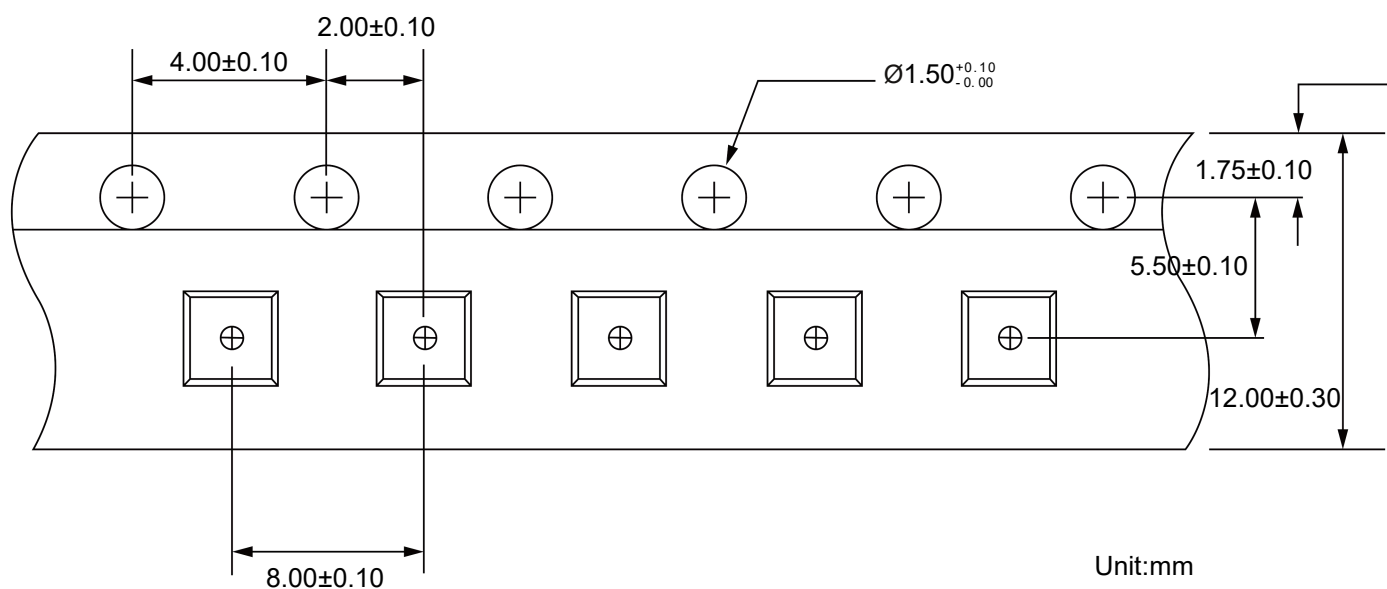


TAPE AND REEL INFORMATION

Reel Dimensions



Tape Dimensions



User Direction of Feed

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