

40V 60A N-Channel MOSFET

MOSFET Product Summary

V_{DS}	$R_{DS(ON)}$ (Typ.)	I_D
40V	6.3m Ω @ $V_{GS}=10V$	40A
	8.7m Ω @ $V_{GS}=4.5V$	

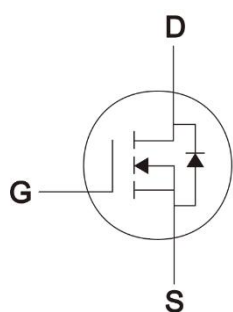
Description

The PM04N40D338 uses advanced split gate 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.

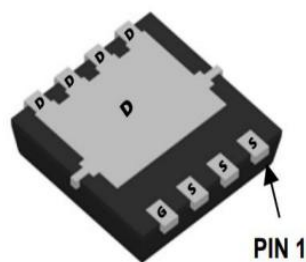
Features

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

Dimensions and Pin Configuration



Circuit diagram



Bottom View

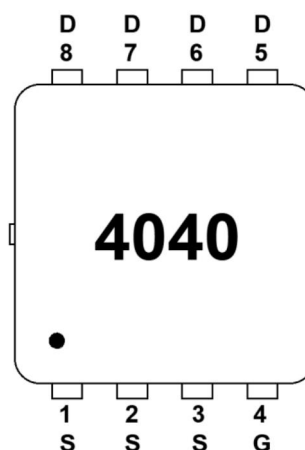
Mechanical Characteristics

- 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



4040 = Device Marking Code

Ordering Information

Part Number	Shipping	Reel Size
PM04N40D338	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}	40	V
Gate-Source Voltage	V_{GS}	± 20	V

Continuous Drain Current ^(Note1)	$T_C=25^{\circ}\text{C}$	I_D	40	A
	$T_C=100^{\circ}\text{C}$		25	A
Pulsed Drain Current ^(Note2)		I_{DM}	160	A
Power Dissipation	$T_C=25^{\circ}\text{C}$	P_D	21.9	W
Thermal Resistance from Junction to Case		$R_{\theta JC}$	5.7	$^{\circ}\text{C/W}$
Junction Temperature		T_J	-55~ +150	$^{\circ}\text{C}$
Storage Temperature		T_{STG}	-55~ +150	$^{\circ}\text{C}$

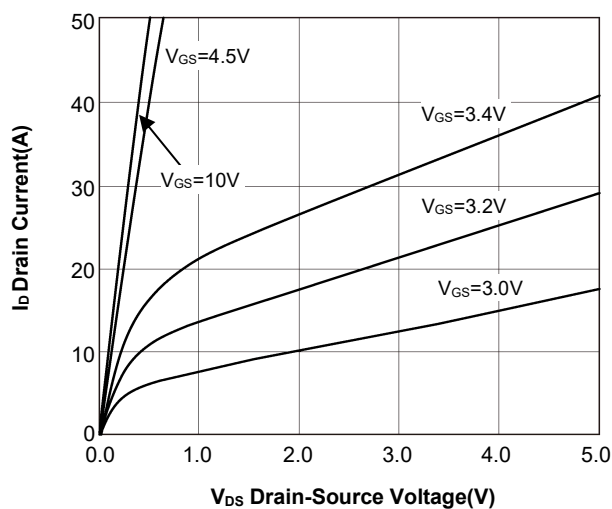
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-to-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	40	-	-	V
Zero Gate voltage Drain Current	I _{DSS}	V _{DS} =40V, V _{GS} =0V	-	-	1	μA
Gate-to-Source Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250μA	1.0	1.5	2.2	V
Drain-to-Source On-Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =20A	-	6.3	8.0	mΩ
		V _{GS} =4.5V, I _D =10A	-	8.7	13	
Diode Forward Voltage	V _{SD}	I _S =20A,V _{GS} =0V	-	0.89	1.25	V
Dynamic Characteristics						
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =20V, f=1MHz	-	641	-	pF
Output Capacitance	C _{oss}		-	321	-	
Reverse Transfer Capacitance	C _{rss}		-	8	-	
Switching Characteristics						
Turn-On Delay Time	t _{d(on)}	V _{GS} =10V, V _{DD} =20V, I _D =20A, R _{GEN} =3Ω	-	4.8	-	ns
Turn-On Rise Time	t _r		-	2.7	-	
Turn-Off Delay Time	t _{d(off)}		-	18	-	
Turn-Off Fall Time	t _f		-	2.2	-	
Gate Total Charge	Q _g	V _{GS} =10V, V _{DS} =20V, I _D =20A	-	12	-	nC
Gate-Source Charge	Q _{gs}		-	1.6	-	
Gate-Drain Charge	Q _{gd}		-	2	-	

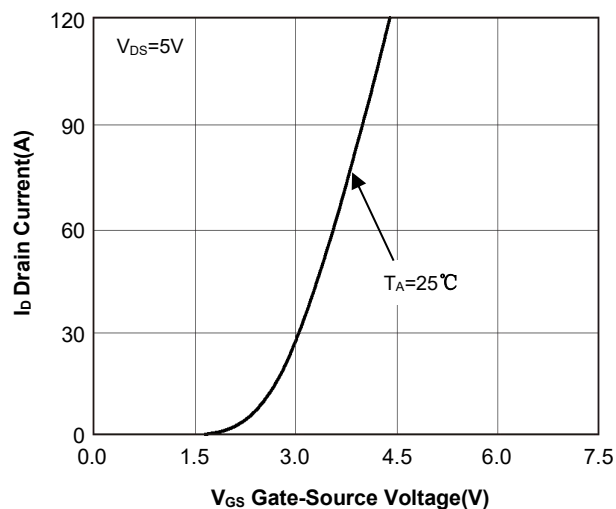
Notes:

1. This current is chip limited, which is calculated based on $R_{\theta JC}$.
2. This current is calculated on single pulse with 10 μ s Pulse & Duty Cycle = 1%.

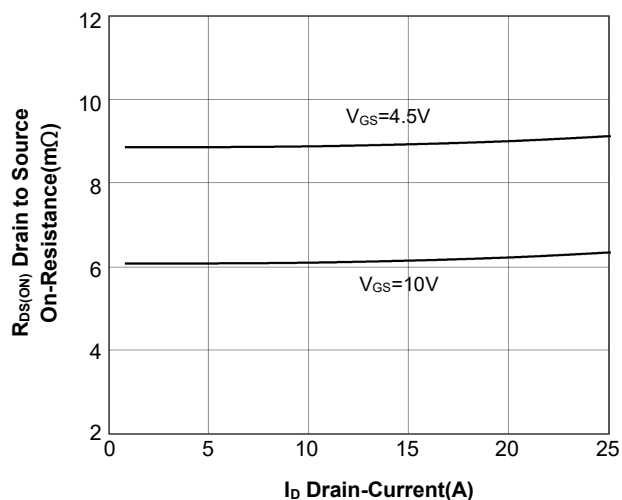
Typical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise specified)



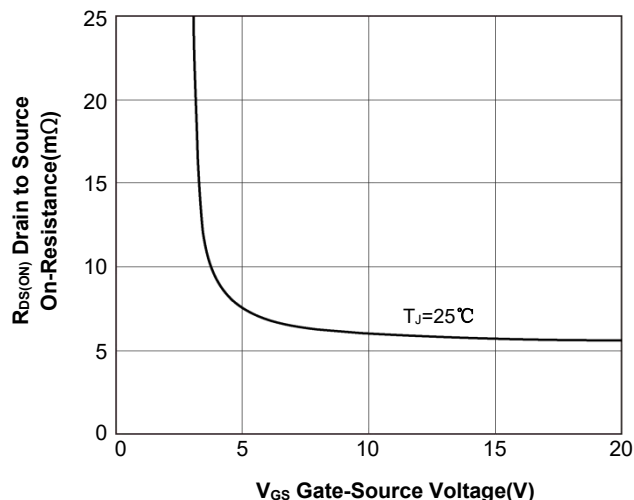
Drain Current vs. Drain-Source Voltage



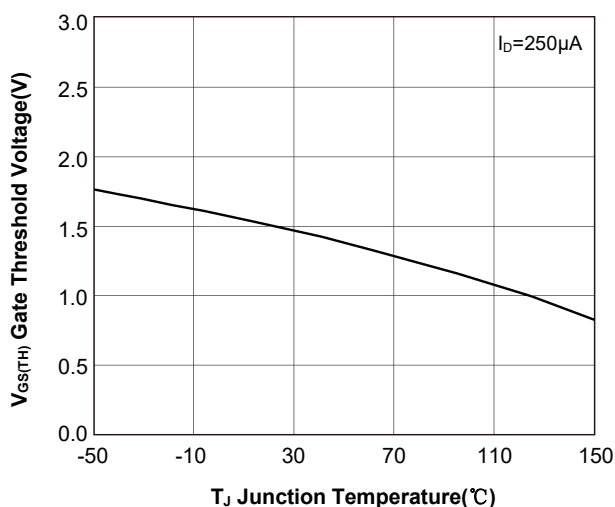
Drain Current vs. Gate-Source Voltage



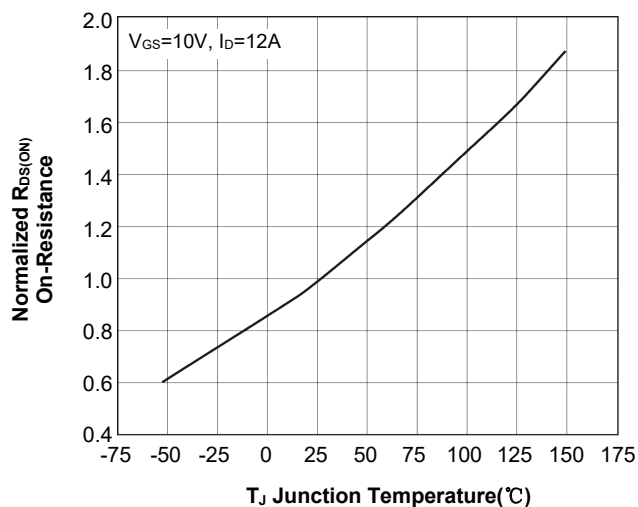
$R_{DS(on)}$ On-Resistance vs. Drain-Current



On-Resistance vs. Gate-Source Voltage

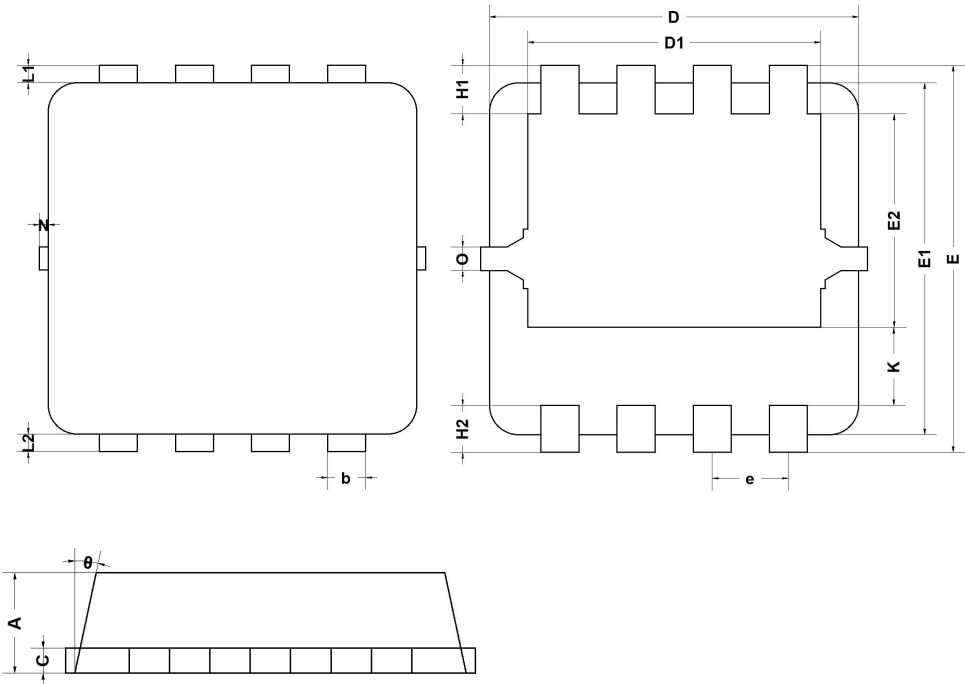


Gate Threshold Voltage vs. Temperature



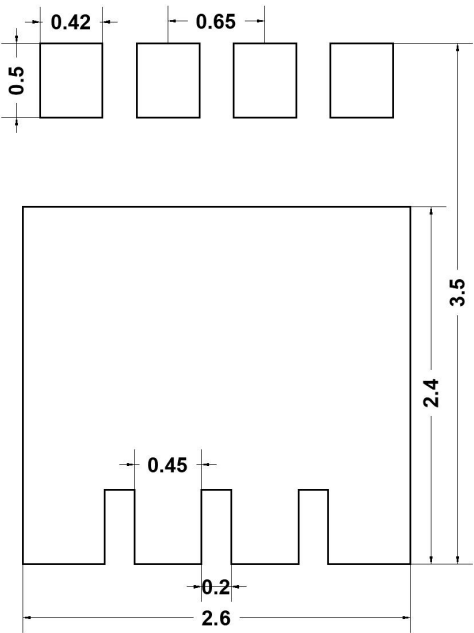
On-Resistance vs. Temperature

PDFN3.3*3.3-8L Package Outline Drawing



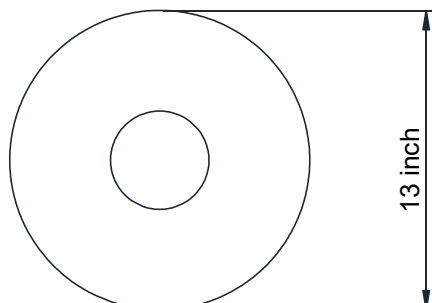
Symbol	Dimensions In Millimeters	
	Min.	Max.
A	-	0.90
b	0.25	0.40
C	0.15	0.25
D	3.05	3.25
D1	2.35	2.75
E	3.20	3.45
E1	2.90	3.20
E2	1.52	1.92
e	0.65BSC	
H1	0.31	0.52
H2	0.25	0.50
K	0.67	0.96
L1/L2	0.05	0.23
θ	8°	13°
N	0.00	0.15
O	0.2REF	

Suggested Land Pattern (Unit: mm)

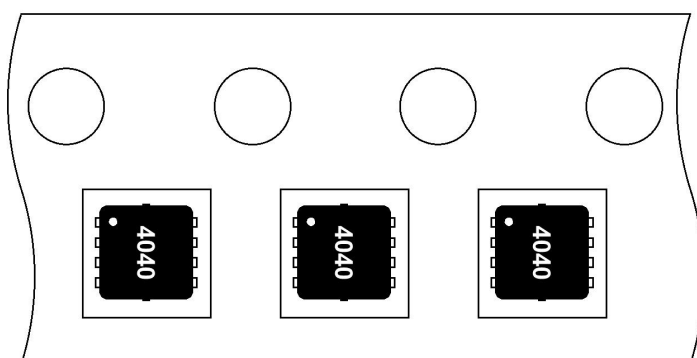
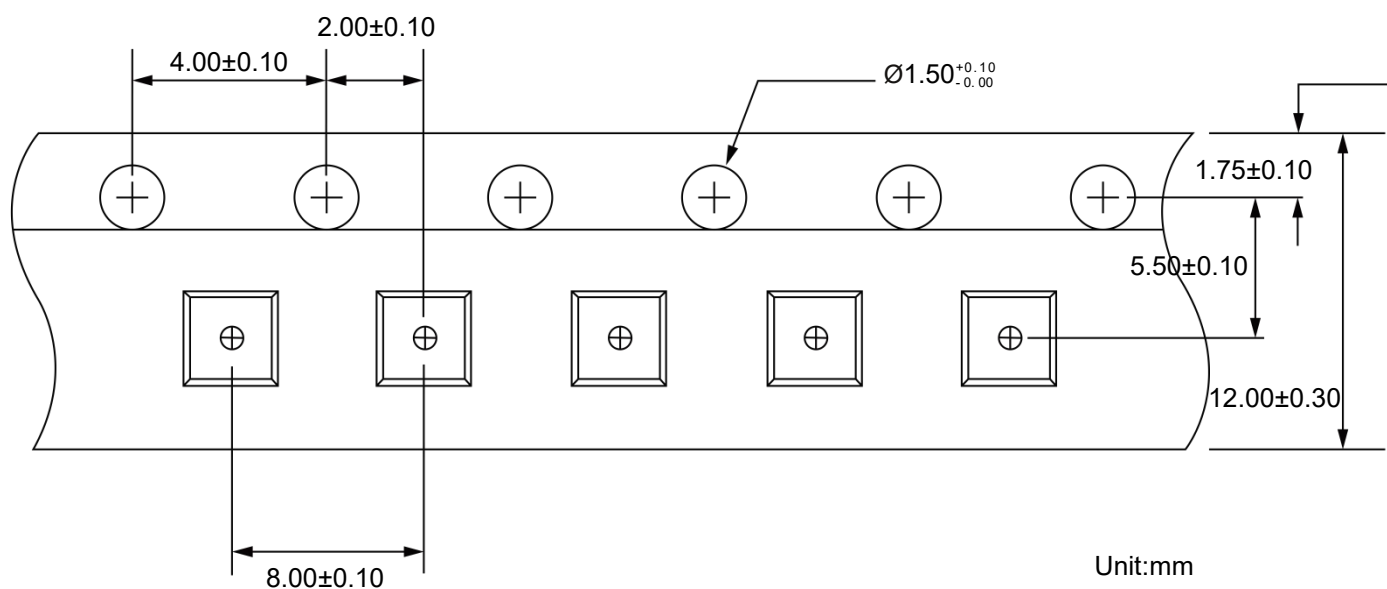


TAPE AND REEL INFORMATION

Reel Dimensions



Tape Dimensions



➔
User Direction of Feed

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