

P-Channel Enhancement Mode MOSFET

1 Features

- $V_{DS} = -20V$, $I_D = -2A$
- $R_{DS(ON)} < 186m\Omega$ @ $V_{GS} = -4.5V$
- $R_{DS(ON)} < 265m\Omega$ @ $V_{GS} = -2.5V$
- High density cell design for extremely low $R_{DS(ON)}$
- Lead free product is acquired
- Package DFN1006-3L

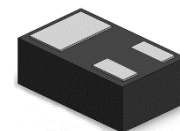
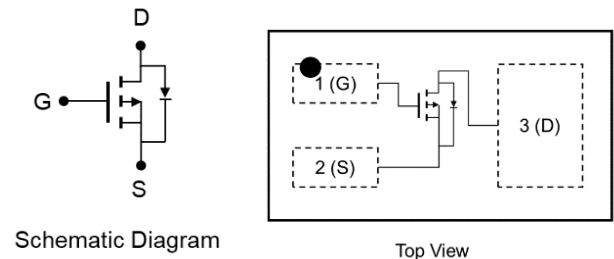
2 Applications

- PWM applications
- Load switch
- Power management

3 Description

The SLMN320V2CP provide the best combination of fast switching, low on-resistance and cost-effectiveness. The MOSFET is the P-Channel enhancement mode power field effect transistors with high cell density, trench technology. This high density process and design have been optimized switching performance and especially tailored to minimize on-state resistance.

4 Pin Configuration and Top View



DFN1006-3L

5 Device Information

PART NUMBER	PACKAGE	BODY SIZE (NOM)
SLMN320V2CP	DFN1006-3L	1.00 mm x 0.60mm

6 Absolute maximum Ratings @25°C

RATING	SYMBOL	VALUE	UNITS
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current	I_D	-2	A
Pulsed Drain Current	I_{DP}	-8	A
Total power dissipation	P_D	0.7	W
Channel temperature	T_J	-55 to +150	°C
Range of storage temperature	T_{STG}	-55 to +150	°C
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	180	°C/W

7 Electrical characteristics (@25°C unless otherwise specified)

PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNITS
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	I _D = -250μA, V _{GS} = 0V	-20			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-0.35	-0.75	-1.1	V
Drain Cut Off Current	I _{DSS}	V _{DS} = -20V, V _{GS} = 0V			-1	μA
Gate Leakage Current	I _{GSS}	V _{GS} = ±12V, V _{DS} = 0V			±10	μA
Drain-Source ON Resistance	R _{DS(ON)}	V _{GS} = -4.5V, I _D = -1A		155	186	mΩ
		V _{GS} = -2.5V, I _D = -0.7A		220	265	mΩ
Dynamic Characteristics						
Total Gate Charge	Q _G	V _{DS} =-10V, I _D =-1A, V _{GS} = -4.5V		4.5		nC
Gate-Source Charge	Q _{GS}			0.85		nC
Gate-Drain Charge	Q _{GD}			1.4		nC
Input Capacitance	C _{ISS}	V _{DS} = -10V, V _{GS} = 0V, f = 1MHz		326		pF
Reverse Transfer Capacitance	C _{RSS}			55		pF
Output Capacitance	C _{OSS}			62		pF
Turn-On Delay Time	t _{d(on)}	V _{GS} =-4.5V, V _{DS} =-10V, I _D =-1A, R _G =2.5Ω		6		ns
Turn-Off Delay Time	t _{d(off)}			45		ns
Rise Time	t _r			30		ns
Fall Time	t _f			46		ns
Drain-Source Body Diode Characteristics						
Source-Drain Diode Forward Voltage	V _{SD}	I _S = -2A, V _{GS} = 0V		-0.8	-1.2	V

8 Typical Characteristics

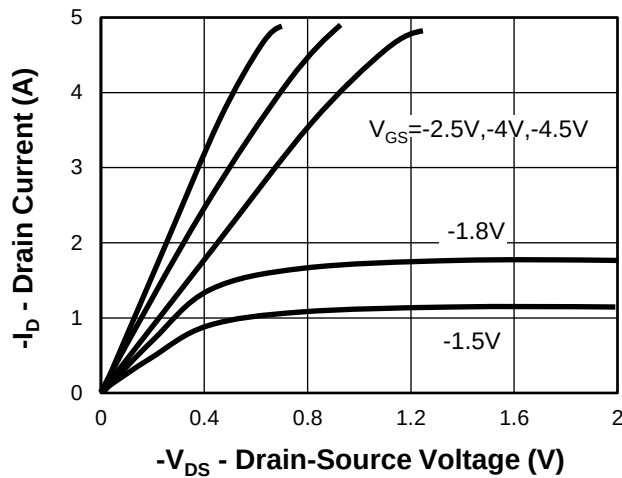


Fig 1. Output Characteristics

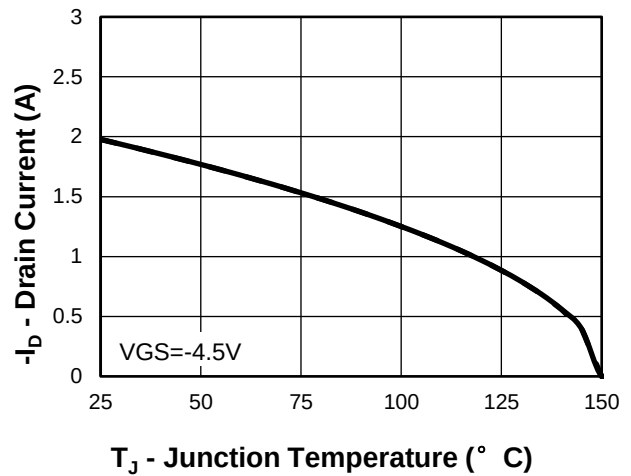


Fig 2. Drain Current

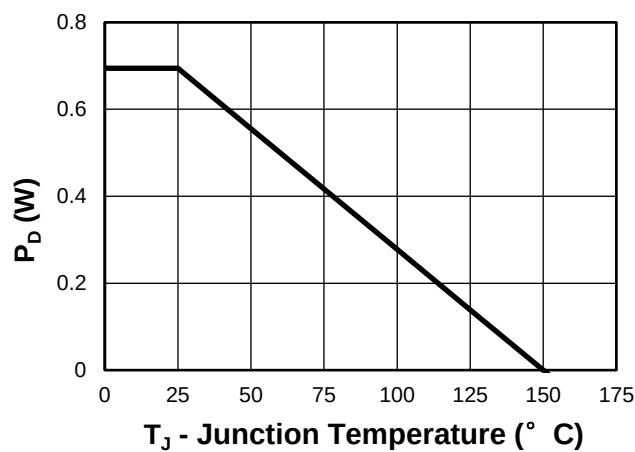


Fig 3. Power Dissipation

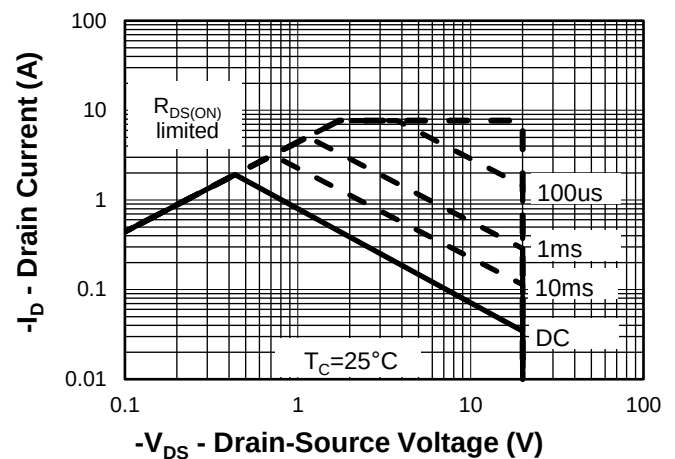


Fig 4. Safe Operation Area(SOA)

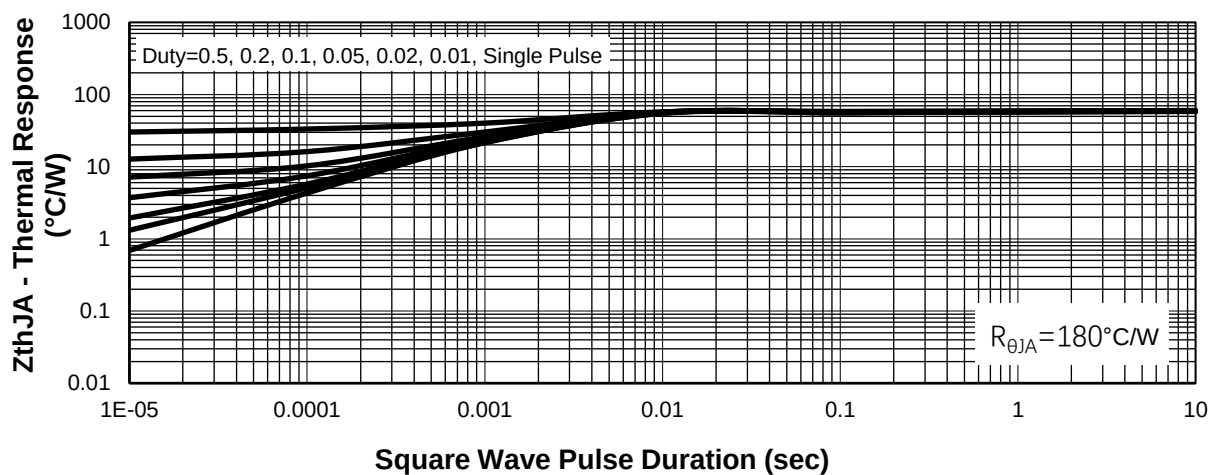
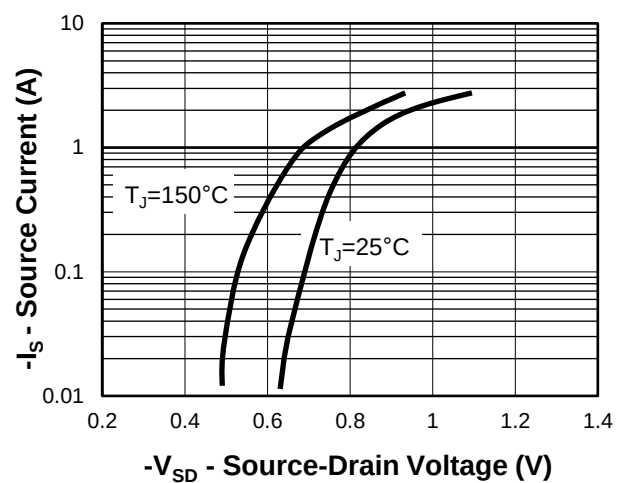
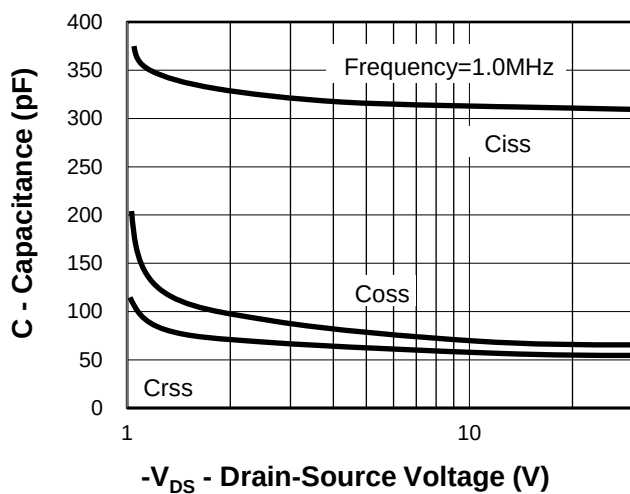
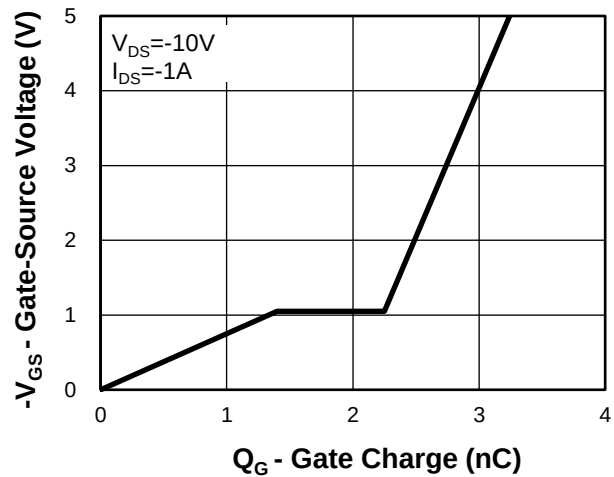
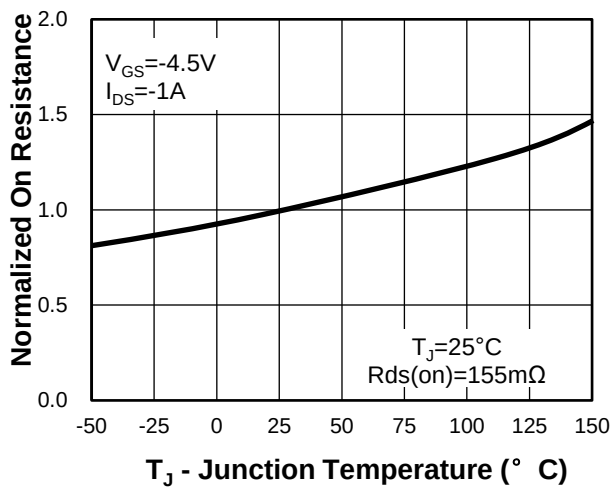
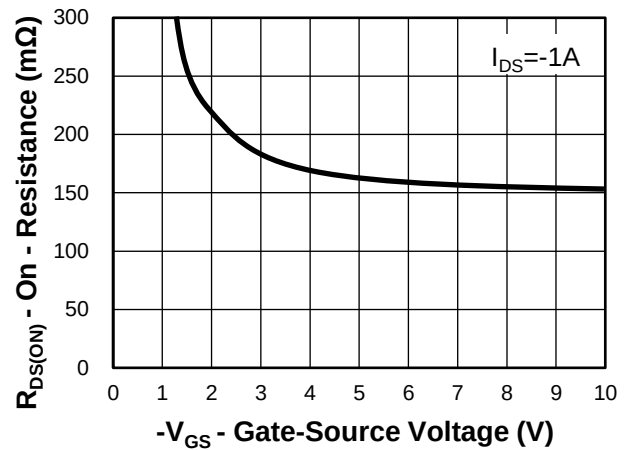
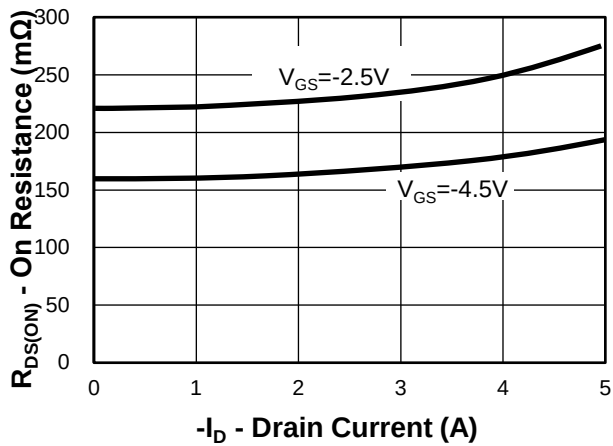
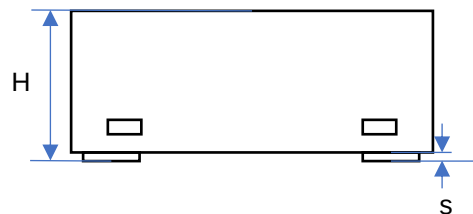
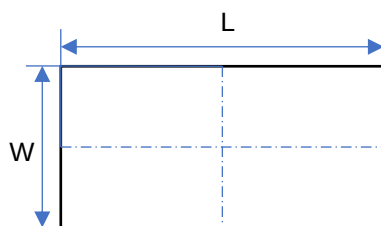


Fig 5. Thermal Transient Impedance

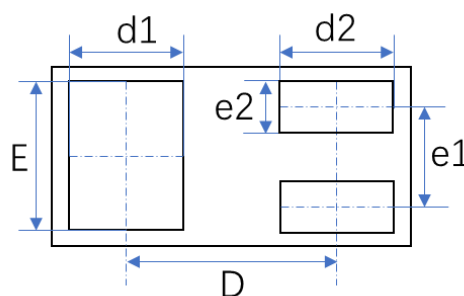


9 Product dimension

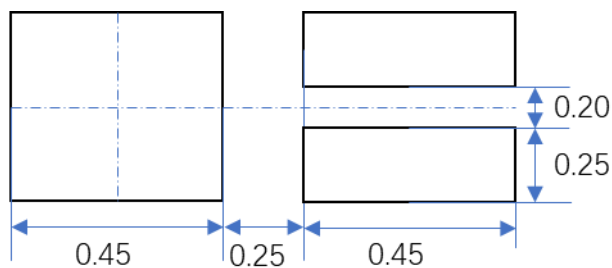
DFN1006-3L



DIM	UNITS (mm)		
	MIN.	TYP.	MAX.
L	0.95	1.00	1.05
W	0.55	0.60	0.65
H	0.45	0.52	0.58
s	0.00	-	0.05
D	-	0.65	-
E	0.45	0.50	0.55
d1	0.20	0.25	0.30
d2	0.20	0.25	0.30
e1	-	0.35	-
e2	0.10	0.15	0.20



10 PCB Layout Footprints (Units: mm)



11 Ordering Information

Part Number	Packaging	Reel Size
SLMN320V2CP	10000/Tape & Reel	7 inch