

P-Channel Enhancement Mode MOSFET

1 Features

- $V_{DS} = -15V$, $I_D = -12A$
- $R_{DS(ON)} < 30m\Omega$ @ $V_{GS} = -4.5V$ (Type: 23m Ω)
- $R_{DS(ON)} < 42m\Omega$ @ $V_{GS} = -2.5V$ (Type: 32m Ω)
- High density cell design for extremely low $R_{DS(ON)}$
- Lead free product is acquired
- Conventional DFN2020-6L Package

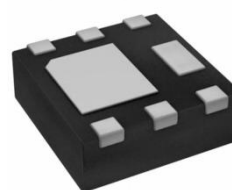
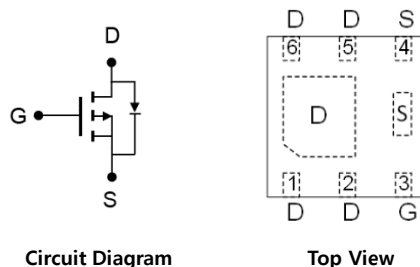
2 Applications

- Cellular Handsets and Accessories
- Personal Digital Assistants
- Portable Instrumentation
- Load switch

3 Description

The SLMN415V12CP 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



DFN2020-6L

5 Device Information

PART NUMBER	PACKAGE	BODY SIZE (NOM)
SLMN415V12CP	DFN2020-6L	2.00 mm x 2.00mm

6 Absolute maximum Ratings @25°C

RATING	SYMBOL	VALUE	UNITS
Drain-Source Voltage	V_{DS}	-15	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current	I_D	-12	A
Pulsed Drain Current	I_{DP}	-48	A
Total power dissipation	P_D	2.0	W
Channel temperature	T_J	-55 to +150	°C
Range of storage temperature	T_{STG}	-55 to +150	°C
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	62.5	°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	-15			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-0.4	-0.6	-1.1	V
Drain Cut Off Current	I _{DSS}	V _{DS} = -12V, V _{GS} = 0V			-1	μA
Gate Leakage Current	I _{GSS}	V _{GS} = ±12V, V _{DS} = 0V			±0.1	μA
Drain-Source ON Resistance	R _{DS(ON)}	V _{GS} = -4.5V, I _D = -7A		23	30	mΩ
		V _{GS} = -2.5V, I _D = -5A		32	42	mΩ
Dynamic Characteristics						
Total Gate Charge	Q _G	V _{DS} = -10V, I _D = -5A, V _{GS} = -4.5V		14		nC
Gate-Source Charge	Q _{GS}			1.6		nC
Gate-Drain Charge	Q _{GD}			2.4		nC
Input Capacitance	C _{ISS}	V _{DS} = -10V, V _{GS} = 0V, f = 1MHz		650		pF
Reverse Transfer Capacitance	C _{RSS}			115		pF
Output Capacitance	C _{OSS}			134		pF
Turn-On Delay Time	t _{d(on)}	V _{GS} = -4.5V, V _{DS} = -10V, I _D = -5A, R _G = 1Ω		4.2		ns
Turn-Off Delay Time	t _{d(off)}			17		ns
Rise Time	t _r			9		ns
Fall Time	t _f			3.2		ns
Drain-Source Body Diode Characteristics						
Source-Drain Diode Forward Voltage	V _{SD}	I _S = -7A, V _{GS} = 0V		-0.9	-1.2	V

8 Typical Characteristics

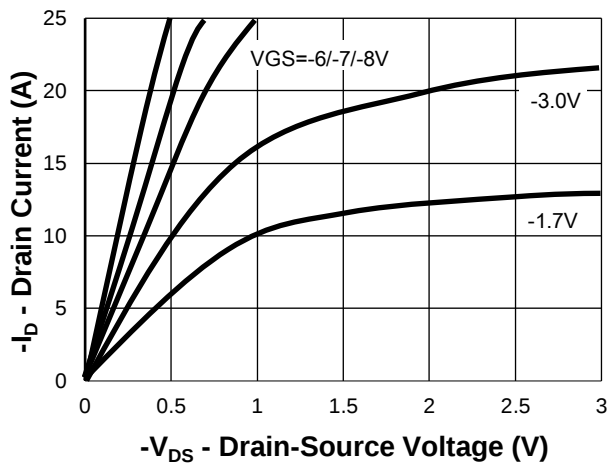


Fig 1. Output Characteristics

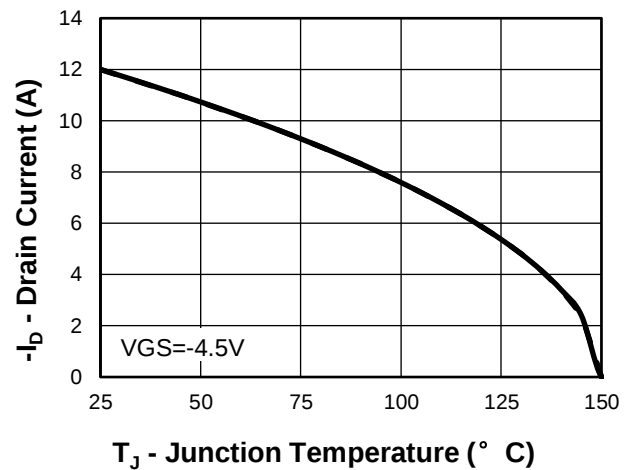


Fig 2. Drain Current

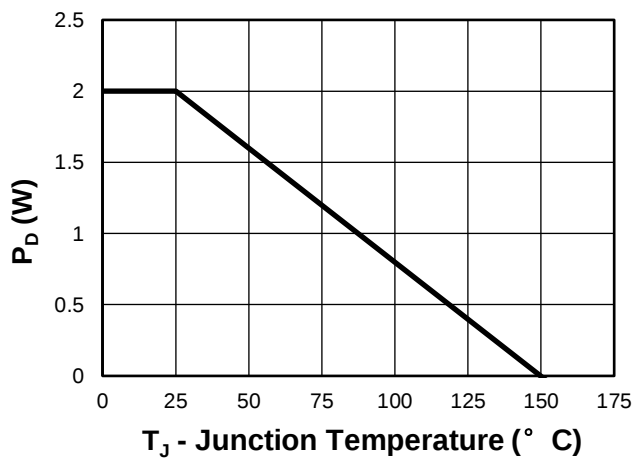


Fig 3. Power Dissipation

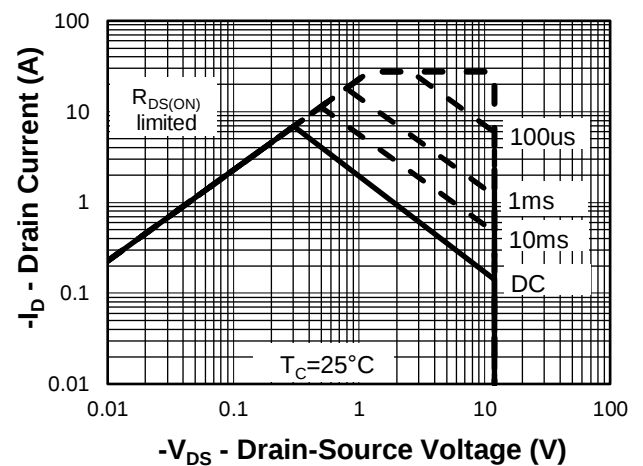


Fig 4. Safe Operation Area(SOA)

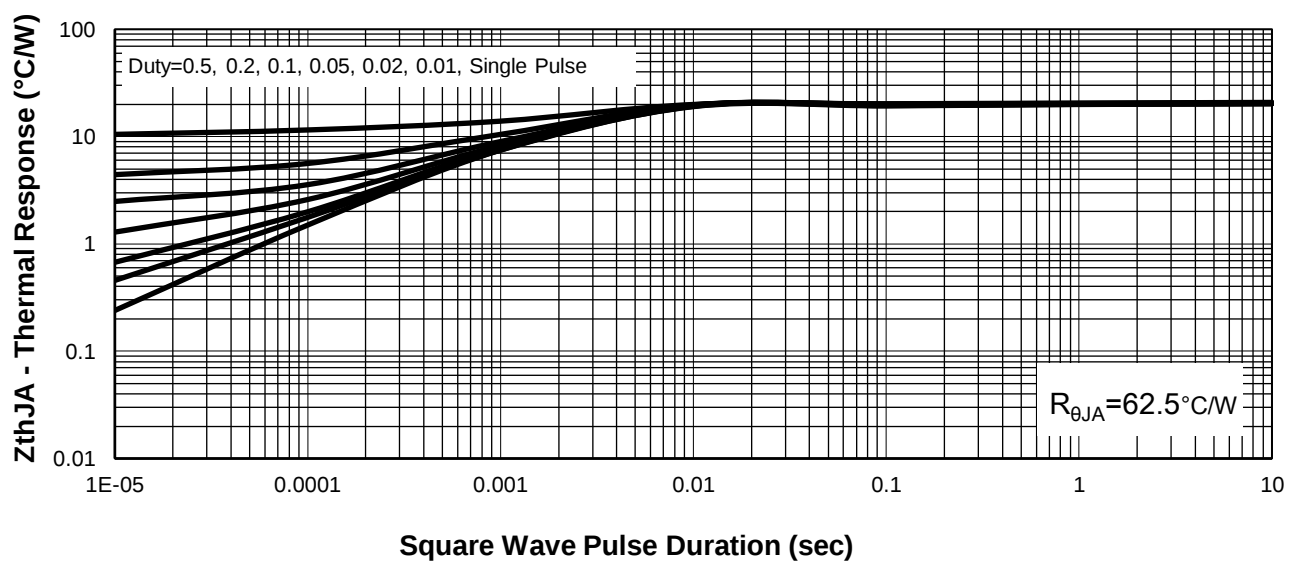
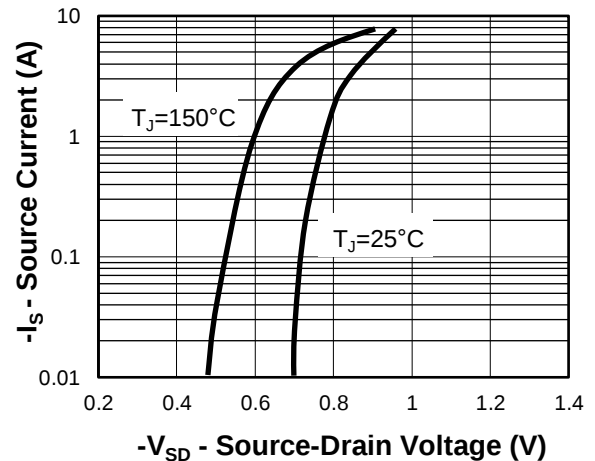
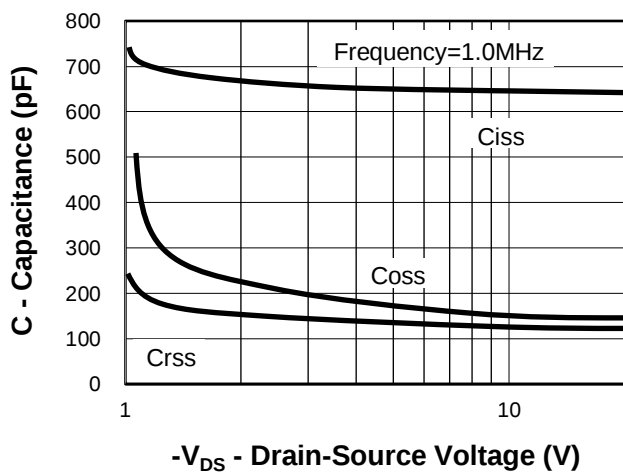
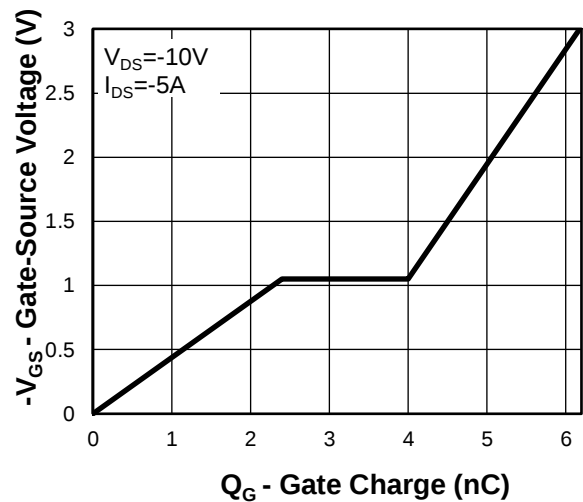
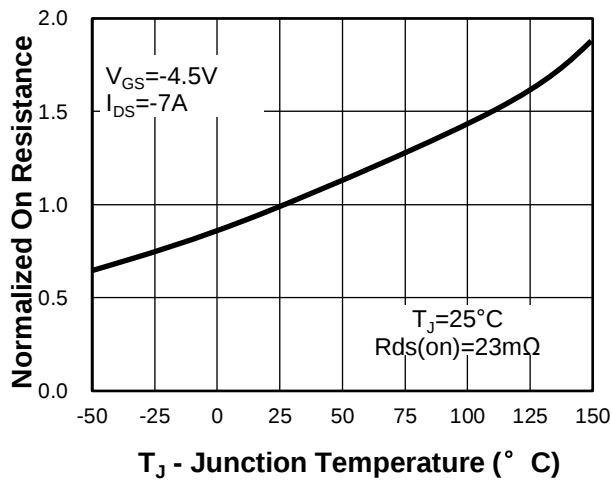
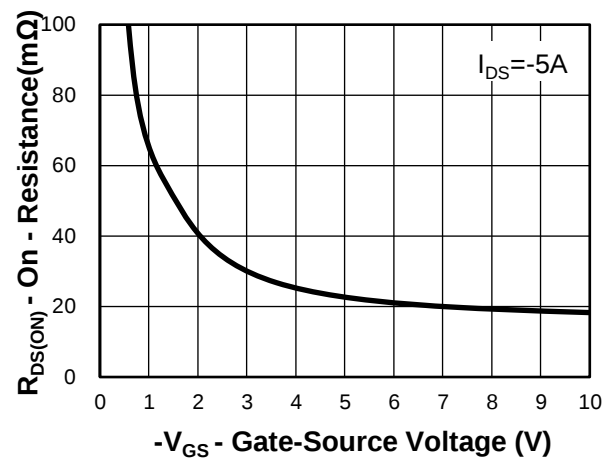
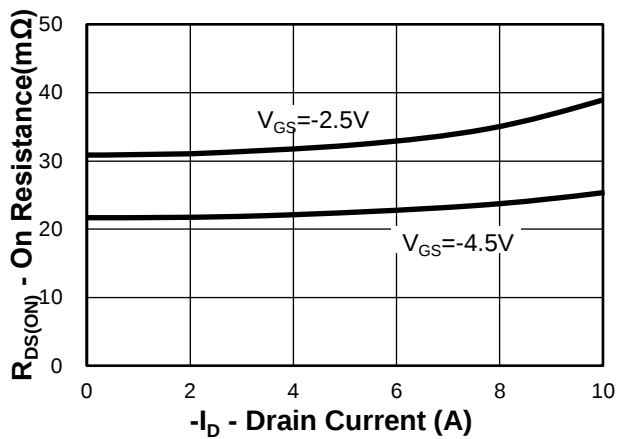
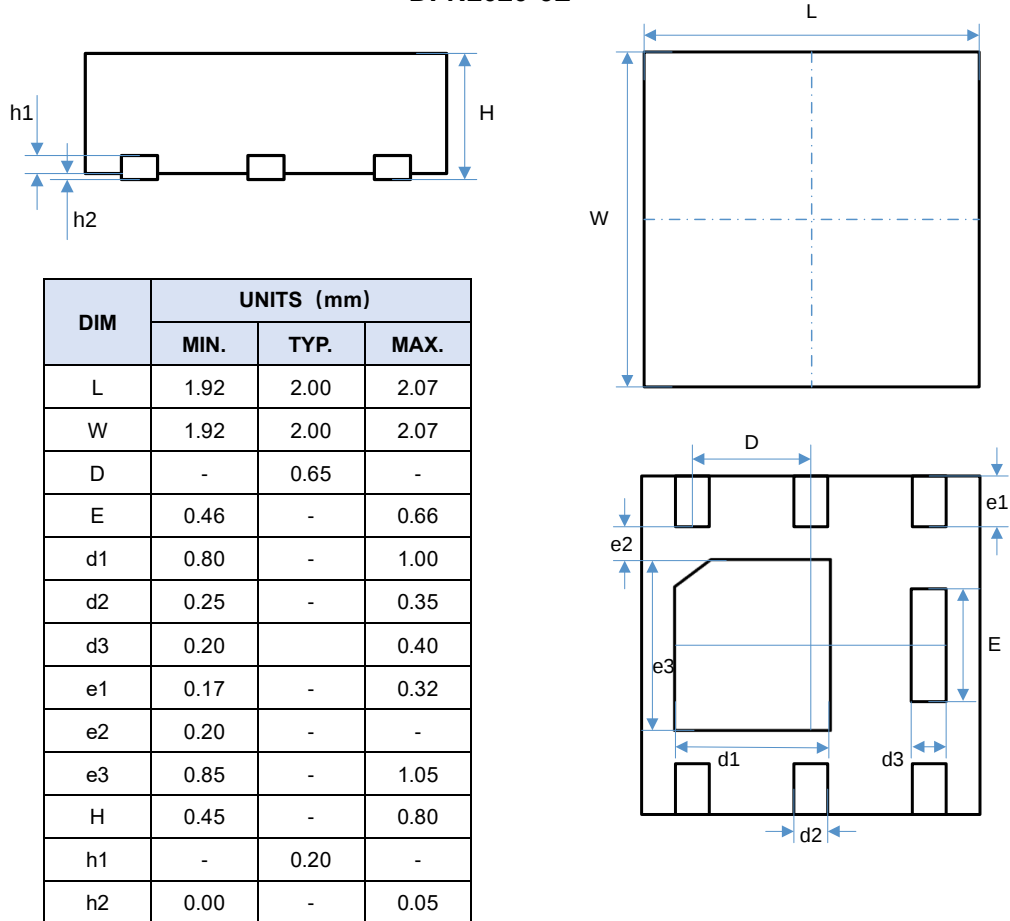


Fig 5. Thermal Transient Impedance



9 Product dimension

DFN2020-6L


10 Ordering Information

Part Number	Packaging	Reel Size
SLMN415V12CP	3000/Tape & Reel	7 inch