

N-Channel Enhancement Mode MOSFET

1 Features

- $V_{DS} = 30V$, $I_D = 8A$
- $R_{DS(ON)} < 30m\Omega$ @ $V_{GS}=4.5V$
- $R_{DS(ON)} < 39m\Omega$ @ $V_{GS}=2.5V$
- High density cell design for extremely low $R_{DS(ON)}$
- Lead free product is acquired
- Package DFN2020-6L

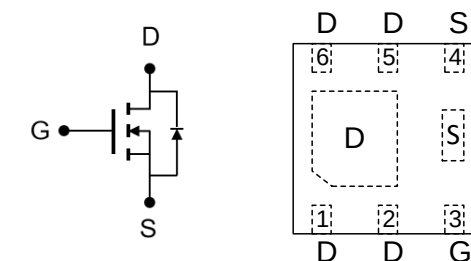
2 Applications

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

3 Description

The SLMN430V10CN provide the best combination of fast switching, low on-resistance and cost-effectiveness. The MOSFET is the N-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



Schematic Diagram



DFN2020-6L

5 Device Information

PART NUMBER	PACKAGE	BODY SIZE (NOM)
SLMN430V10CN	DFN2020-6L	2.00 mm x 2.00mm

6 Absolute maximum Ratings @25°C

RATING	SYMBOL	VALUE	UNITS
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current	I_D	8	A
Pulsed Drain Current	I_{DP}	30	A
Total power dissipation	P_D	1.6	W
Channel temperature	T_J	-55 to +150	°C
Range of storage temperature	T_{STG}	-55 to +150	°C
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	78	°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	30			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	0.5	0.9	1.5	V
Drain Cut Off Current	I _{DSS}	V _{DS} = 30V, 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 = 4A		25	30	mΩ
		V _{GS} = 2.5V, I _D = 2A		32	39	mΩ
Dynamic Characteristics						
Total Gate Charge	Q _G	V _{DS} =15V, I _D =5A, V _{GS} = 10V		16.5		nC
Gate-Source Charge	Q _{GS}			2		nC
Gate-Drain Charge	Q _{GD}			2		nC
Input Capacitance	C _{ISS}	V _{DS} = 15V, V _{GS} = 0V, f = 1MHz		520		pF
Reverse Transfer Capacitance	C _{RSS}			50		pF
Output Capacitance	C _{OSS}			60		pF
Turn-On Delay Time	t _{d(on)}	V _{GS} =10V, V _{DS} =15V, R _L = 2.6Ω R _G =3Ω		6		ns
Turn-Off Delay Time	t _{d(off)}			20		ns
Rise Time	t _r			50		ns
Fall Time	t _f			90		ns
Gate Resistance	R _g	V _{GS} =0V, V _{DS} =0V f=1 MHz		3		Ω
Drain-Source Body Diode Characteristics						
Source-Drain Diode Forward Voltage	V _{SD}	I _S = 1A, V _{GS} = 0V		0.75	1.2	V

8 Typical Characteristics

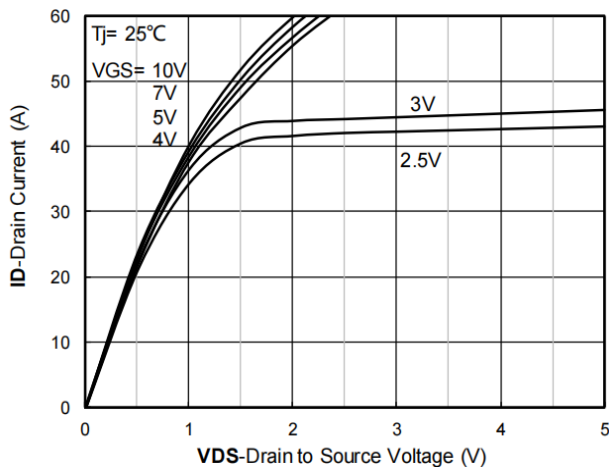


Fig 1: Output Characteristics

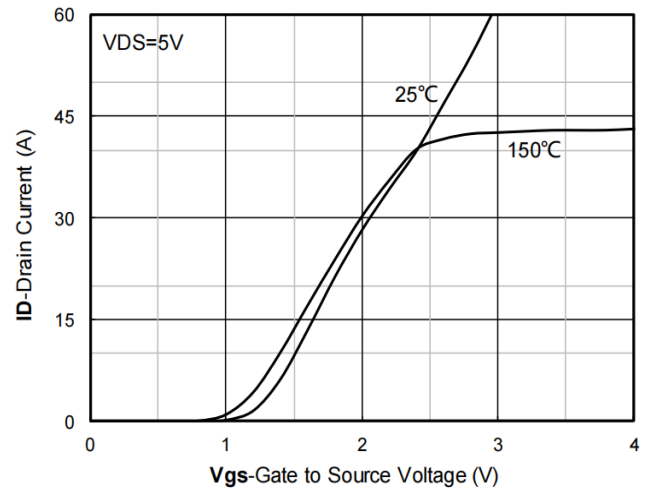


Fig 2: Transfer Characteristics

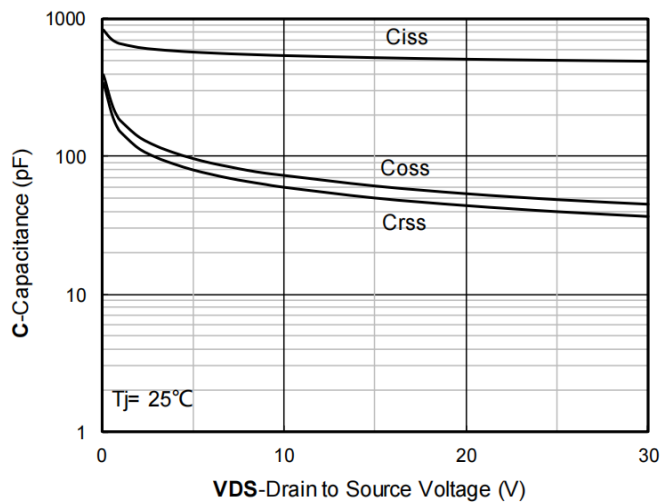


Fig 3: Capacitance Characteristics

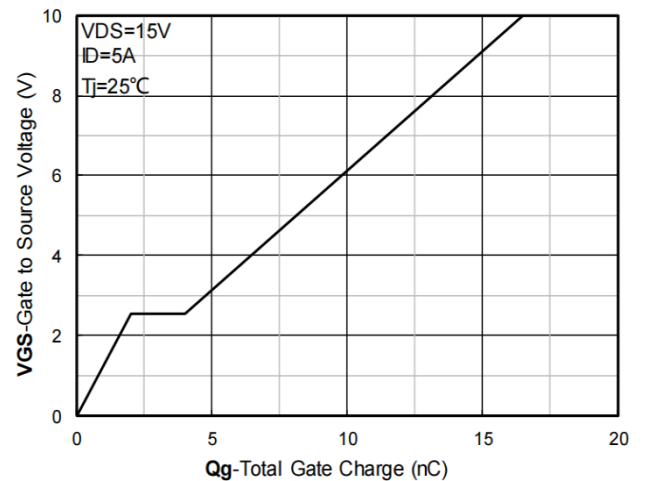


Fig 4: Gate Charge

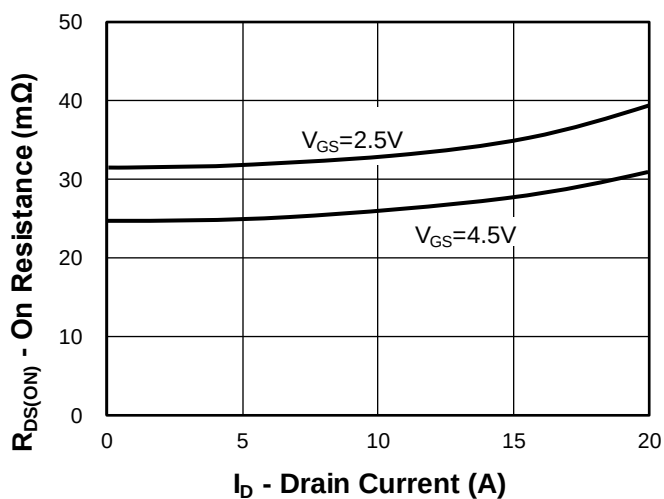


Fig 5: RDS(on) VS Drain Current

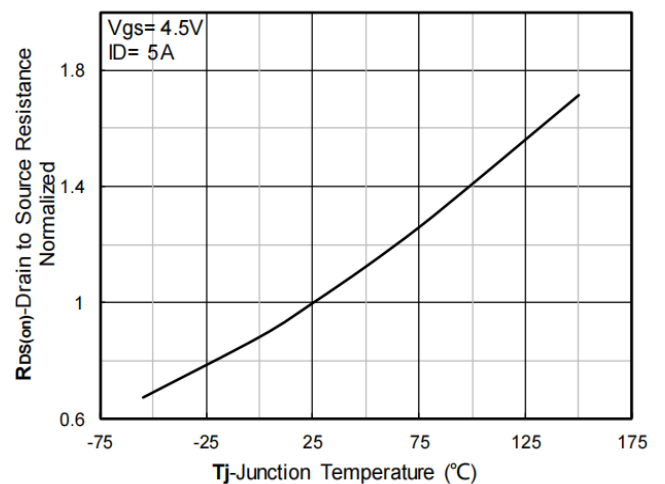
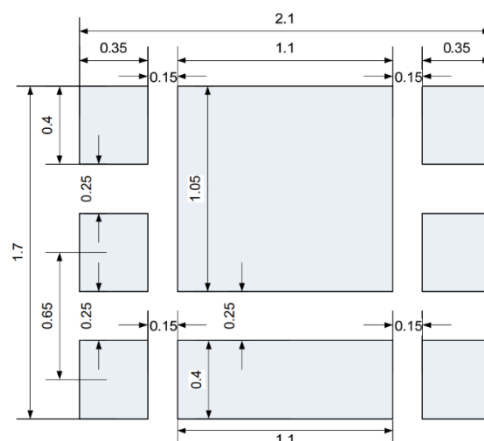
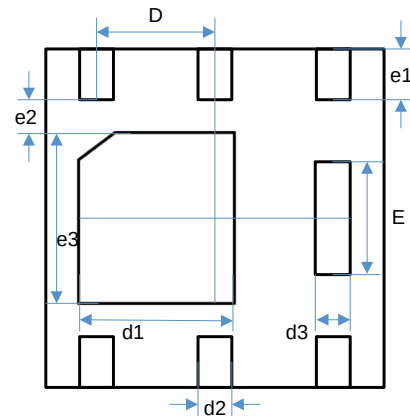


Fig 6: Normalized On-Resistance

DFN2020-6L



Part Number	Packaging	Reel Size
SLMN430V10CN	3000/Tape & Reel	7 inch