



SGMNQ07430

30V, Power, Single N-Channel, PDFN Package, MOSFET

GENERAL DESCRIPTION

The power MOSFET features a low on-state resistance.

FEATURES

- Low On-State Resistance
- Low QG and Capacitance Losses
- Small Footprint (5×6mm²) for Compact Design
- Halogen-Free/RoHS Compliant

APPLICATIONS

CPU Power Delivery

DC-DC Converters

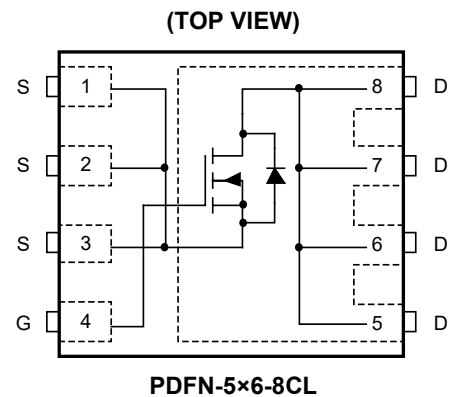
Power Load Switch

Notebook Battery Management

PRODUCT SUMMARY

$R_{DS(ON)}$ (TYP)	$R_{DS(ON)}$ (MAX)	I_D (MAX)
0.6mΩ	0.72mΩ	300A

PIN CONFIGURATION



ABSOLUTE MAXIMUM RATINGS

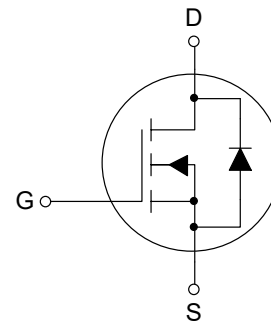
PARAMETER	SYMBOL	VALUE	UNITS
Drain-to-Source Voltage	V_{DS}	30	V
Gate-to-Source Voltage	V_{GS}	±20	V
Continuous Drain Current (DC) ⁽¹⁾	I_D	300	A
Continuous Drain Current (Pulse)	I_{DM}	550	A
Total Dissipation	P_D	120	W
Avalanche Current	I_{AS}	88	A
Avalanche Energy	E_{AS}	387.2	mJ
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{slg}	-55 to +150	°C
Lead Temperature (Soldering, 10s)		+260	°C

NOTES:

1. Current limited by bond wire.

2. Stresses beyond those listed in Absolute Maximum Ratings may cause permanent damage to the device. Exposure to absolute maximum rating conditions for extended periods may affect reliability.

EQUIVALENT CIRCUIT

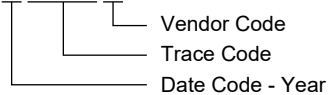


PACKAGE/ORDERING INFORMATION

MODEL	PACKAGE DESCRIPTION	SPECIFIED TEMPERATURE RANGE	ORDERING NUMBER	PACKAGE MARKING	PACKING OPTION
SGMNQ07430	PDFN-5×6-8CL	-55°C to +150°C	SGMNQ07430TPDA8G/TR	SGM07430 TPDA8 XXXXX	Tape and Reel, 4000

MARKING INFORMATION

NOTE: XXXXX = Date Code, Trace Code and Vendor Code.

XXXXX

Green (RoHS & HSF): SG Micro Corp defines "Green" to mean Pb-Free (RoHS compatible) and free of halogen substances. If you have additional comments or questions, please contact your SGMICRO representative directly.

DISCLAIMER

SG Micro Corp reserves the right to make any change in circuit design, or specifications without prior notice.

THERMAL RESISTANCE MAXIMUM RATINGS

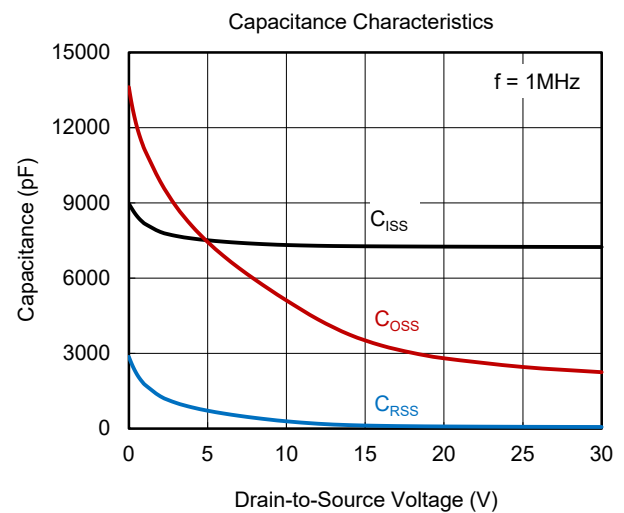
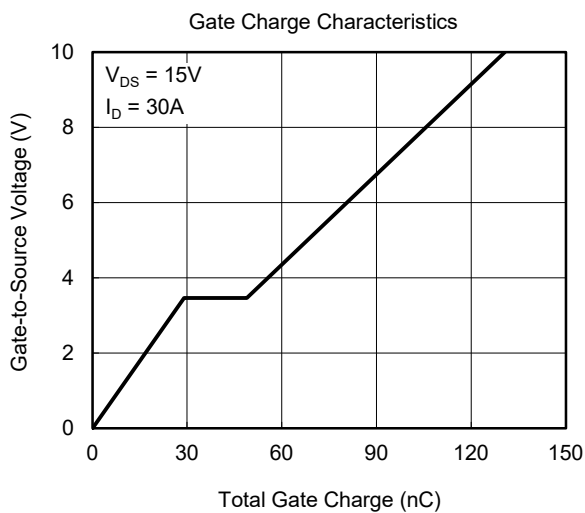
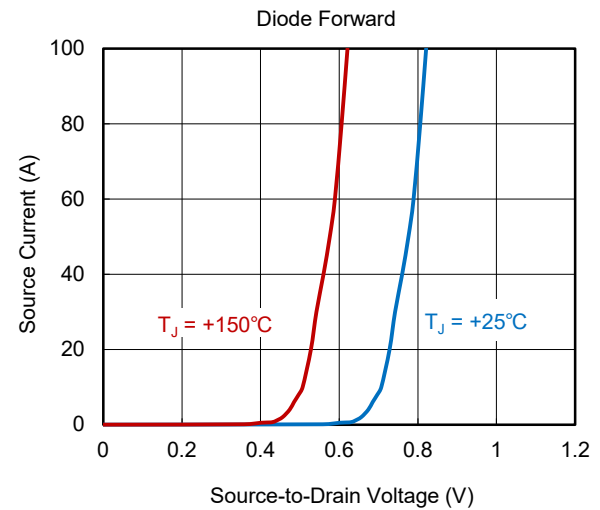
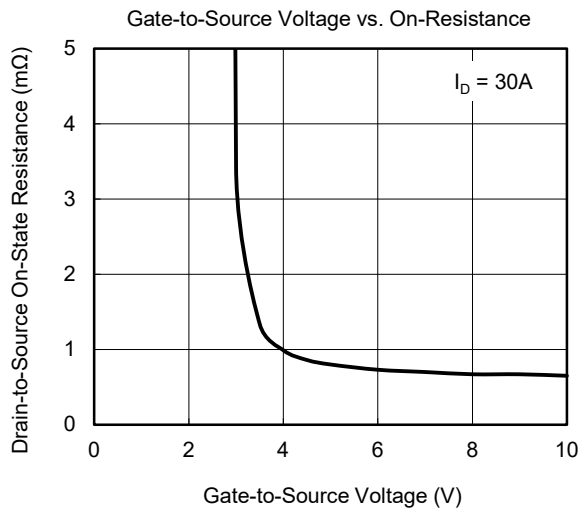
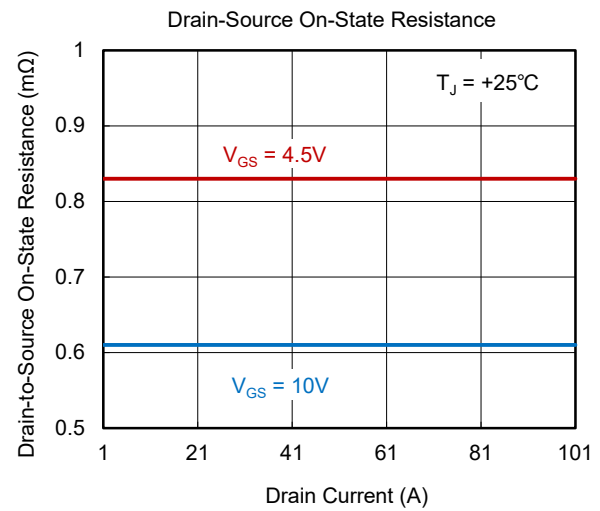
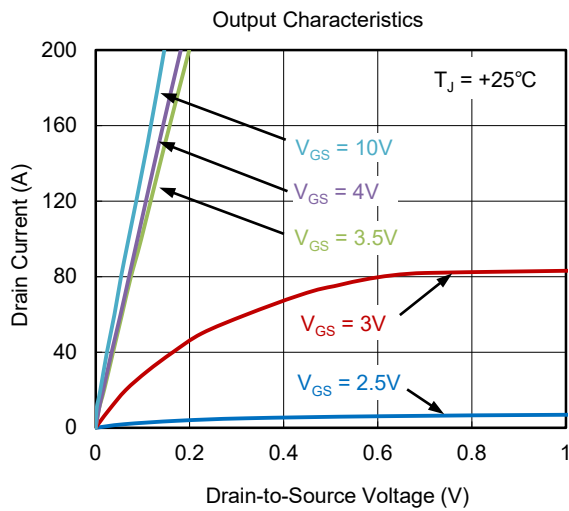
PARAMETER	SYMBOL	VALUE	UNITS
Junction-to-Ambient Thermal Resistance	$R_{\theta JA}$	49	°C/W
Junction-to-Case Thermal Resistance	$R_{\theta JC}$	1.04	°C/W

ELECTRICAL CHARACTERISTICS

(T_A = +25°C, unless otherwise noted.)

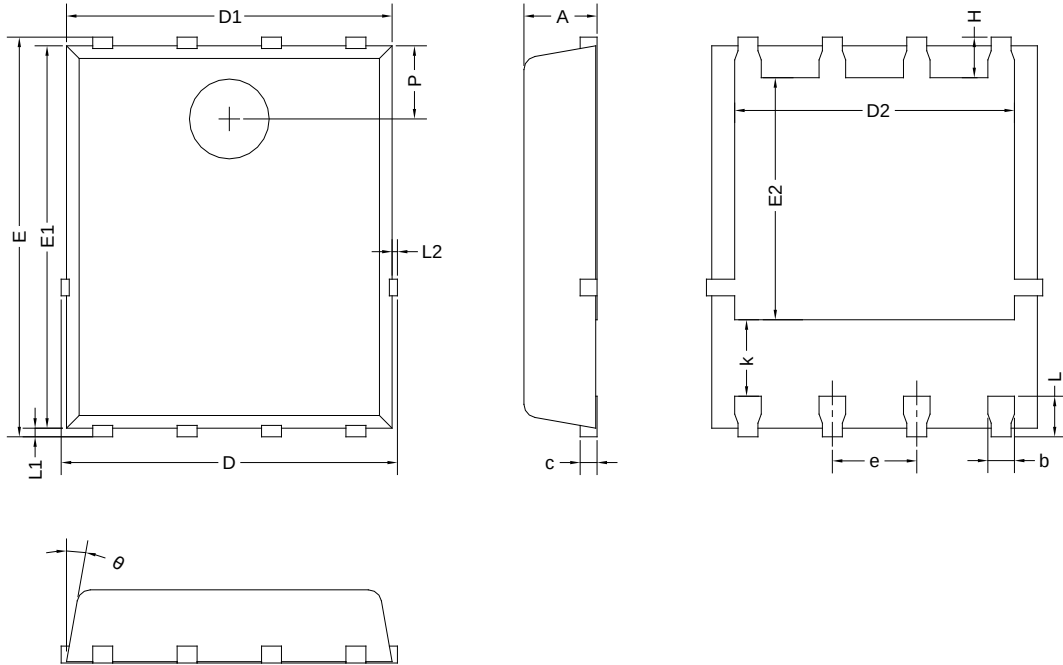
PARAMETER	SYMBOL	CONDITIONS		MIN	TYP	MAX	UNITS
Static OFF Characteristics							
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = 250\mu A, V_{GS} = 0V$		30			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 24V, V_{GS} = 0V$				1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$				± 100	nA
Static ON Characteristics							
Gate-to-Source Threshold Voltage	$V_{GS(TH)}$	$V_{GS} = V_{DS}, I_D = 250\mu A$		1.2	1.5	2.2	V
Drain-to-Source On-State Resistance	$R_{DS(ON)}$	$I_D = 30A, V_{GS} = 10V$			0.6	0.72	m Ω
		$I_D = 30A, V_{GS} = 4.5V$			0.8	1.1	
Forward Transconductance	g_{fs}	$V_{DS} = 12V, I_D = 15A$			36		S
Diode Characteristics							
Diode Forward Voltage	$V_{F(SD)}$	$V_{GS} = 0V, I_S = 10A$			0.7	1.1	V
Reverse Recovery Time	t_{RR}	$I_S = 30A, V_{GS} = 0V, di/dt = 100A/\mu s$			69		ns
Reverse Recovery Charge	Q_{RR}				80		nC
Dynamic Characteristics							
Gate Resistance	R_G	$V_{GS} = 0V, V_{DS} = 0V, f = 1MHz$			1.4	2.5	Ω
Input Capacitance	C_{ISS}	$V_{DS} = 15V, V_{GS} = 0V, f = 1MHz$			7865		pF
Output Capacitance	C_{OSS}				3679		
Reverse Transfer Capacitance	C_{RSS}				86		
Total Gate Charge	Q_G	$V_{DS} = 15V, I_D = 30A$	$V_{GS} = 10V$		130.7		nC
			$V_{GS} = 4.5V$		60.6		
Gate-to-Source Charge	Q_{GS}	$V_{DS} = 15V, V_{GS} = 4.5V, I_D = 30A$			29		nC
Gate-to-Drain Charge	Q_{GD}				19.9		
Switch Characteristics							
Turn-On Delay Time	$t_{D(ON)}$	$V_{DS} = 15V, V_{GS} = 10V, I_D = 15A, R_G = 3\Omega$			17		ns
Rise Time	t_r				49.6		
Turn-Off Delay Time	$t_{D(OFF)}$				86.5		
Fall Time	t_f				39.6		

TYPICAL PERFORMANCE CHARACTERISTICS



PACKAGE OUTLINE DIMENSIONS

PDFN-5x6-8CL



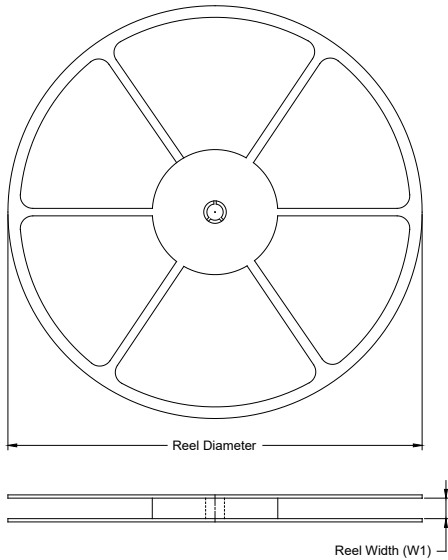
Symbol	Dimensions In Millimeters		
	MIN	MOD	MAX
A	1.000	1.100	1.200
b	0.350	0.400	0.450
c	0.210	0.250	0.340
D	4.800	-	5.100
D1	4.800	4.900	5.000
D2	4.110	4.210	4.310
E	5.900	6.000	6.100
E1	5.700	5.750	5.800
E2	3.540	3.640	3.740
e	1.270 BSC		
H	0.510	0.610	0.710
k	1.100	-	-
L	0.510	0.610	0.710
L1	0.060	0.130	0.200
L2	-	-	0.100
P	1.000	1.100	1.200
θ	8°	10°	12°

NOTE: This drawing is subject to change without notice.

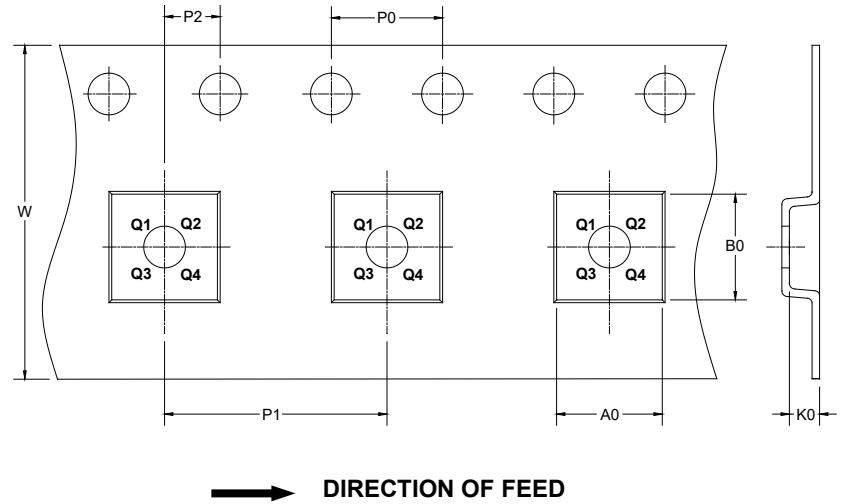
PACKAGE INFORMATION

TAPE AND REEL INFORMATION

REEL DIMENSIONS



TAPE DIMENSIONS



NOTE: The picture is only for reference. Please make the object as the standard.

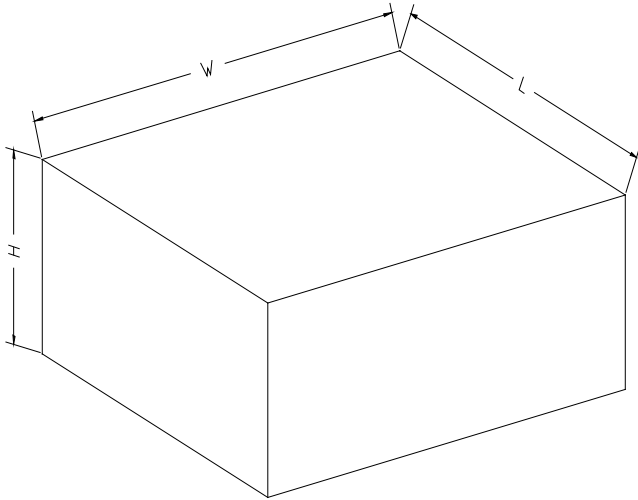
KEY PARAMETER LIST OF TAPE AND REEL

Package Type	Reel Diameter	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P0 (mm)	P1 (mm)	P2 (mm)	W (mm)	Pin1 Quadrant
PDFN-5×6-8CL	13"	12.4	6.45	5.3	1.4	4	8	2	12	Q2

DD00001

PACKAGE INFORMATION

CARTON BOX DIMENSIONS



NOTE: The picture is only for reference. Please make the object as the standard.

KEY PARAMETER LIST OF CARTON BOX

Reel Type	Length (mm)	Width (mm)	Height (mm)	Pizza/Carton
13"	386	280	370	5

DD0002