



# SGMPM15330

## 30V, Power, Single P-Channel, TDFN Package, MOSFET

### GENERAL DESCRIPTION

The SGMPM15330 is a power MOSFET with a low on-state resistance and low gate charge. This feature makes it a good choice for a load switch application.

### FEATURES

- High-Speed Switching
- Low On-State Resistance
- RoHS Compliant and Halogen Free

### APPLICATIONS

Relay Driver Applications

Load Switch Applications

High-Speed Line Driver

Handheld and Mobile Applications

USB Connector VBUS Power Switch

### ABSOLUTE MAXIMUM RATINGS

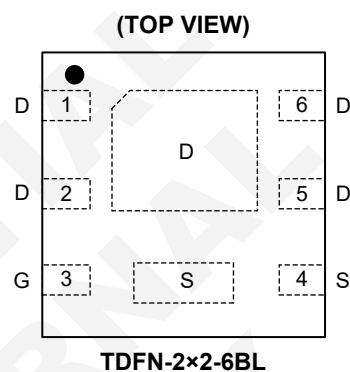
PARAMETER	SYMBOL	VALUE	UNITS
Drain-to-Source Voltage	$V_{DS}$	-30	V
Gate-to-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current (DC)	$I_D$	-8	A
Continuous Drain Current (Pulse)	$I_D$	-30	A
Total Dissipation	$P_D$	2	W
Junction Temperature	$T_J$	+150	$^{\circ}\text{C}$
Storage Temperature Range	$T_{STG}$	-55 to +150	$^{\circ}\text{C}$
Lead Temperature (Soldering, 10s)		+260	$^{\circ}\text{C}$

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.

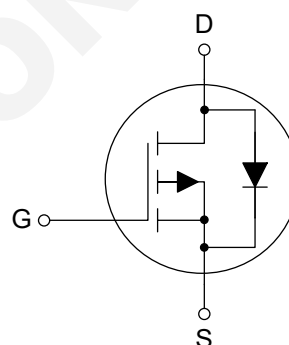
### PRODUCT SUMMARY

$R_{DS(ON)}$ (TYP)	$I_D$ (MAX)
12m $\Omega$	-8A

### PIN CONFIGURATION



### EQUIVALENT CIRCUIT



# SGMPM15330

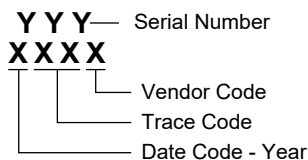
## 30V, Power, Single P-Channel, TDFN Package, MOSFET

### PACKAGE/ORDERING INFORMATION

MODEL	PACKAGE DESCRIPTION	SPECIFIED TEMPERATURE RANGE	ORDERING NUMBER	PACKAGE MARKING	PACKING OPTION
SGMPM15330	TDFN-2×2-6BL	-55°C to +150°C	SGMPM15330TTEN6G/TR	034 XXXX	Tape and Reel, 3000

### MARKING INFORMATION

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



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	$R_{\theta JA}$	62.5	°C/W

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TDFN Package, MOSFET

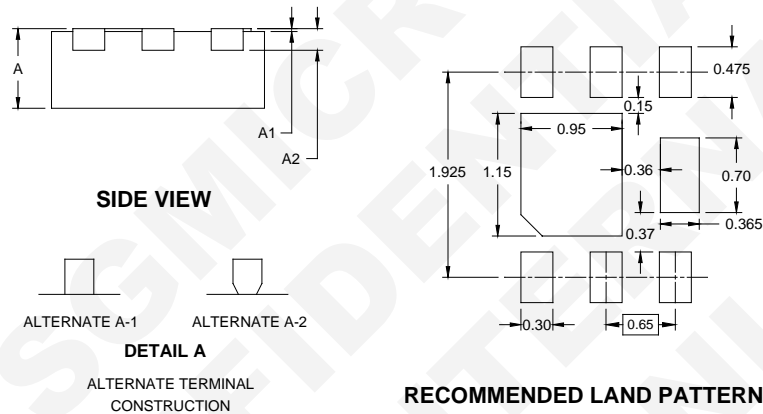
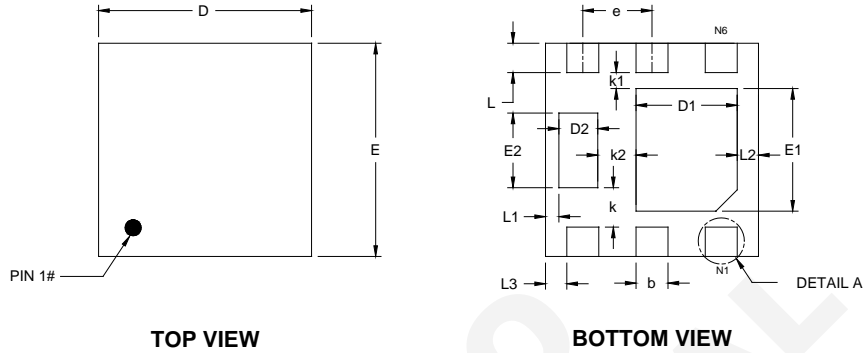
## ELECTRICAL CHARACTERISTICS

(T<sub>A</sub> = +25°C, unless otherwise noted.)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
<b>Static OFF Characteristics</b>						
Drain-to-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	I <sub>D</sub> = -250μA, V <sub>GS</sub> = 0V	-30			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = -30V, V <sub>GS</sub> = 0V			-1	μA
Gate-to-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> = ±20V, V <sub>DS</sub> = 0V			±100	nA
<b>Static ON Characteristics</b>						
Gate-to-Source Threshold Voltage	V <sub>GS(TH)</sub>	V <sub>GS</sub> = V <sub>DS</sub> , I <sub>D</sub> = -250μA		-1.4		V
Static Drain-to-Source On-State Resistance	R <sub>DS(ON)</sub>	I <sub>D</sub> = -8A, V <sub>GS</sub> = -10V		12		mΩ
		I <sub>D</sub> = -8A, V <sub>GS</sub> = -4.5V		22		
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> = -5V, I <sub>D</sub> = -8A				S
<b>Diode Characteristics</b>						
Diode Forward Voltage	V <sub>F(SD)</sub>	V <sub>GS</sub> = 0V, I <sub>S</sub> = -1A			-1.2	V
Reverse Recovery Time	t <sub>RR</sub>	I <sub>S</sub> = -8A, V <sub>GS</sub> = 0V, di/dt = 100A/μs		13.5		ns
Reverse Recovery Charge	Q <sub>RR</sub>			6.3		nC
<b>Dynamic Characteristics</b>						
Input Capacitance	C <sub>ISS</sub>	V <sub>DS</sub> = -15V, V <sub>GS</sub> = 0V, f = 1MHz		1927		pF
Output Capacitance	C <sub>OSS</sub>			200		
Reverse Transfer Capacitance	C <sub>RSS</sub>			166		
Total Gate Charge	Q <sub>G</sub>	V <sub>DS</sub> = -15V, I <sub>D</sub> = -8A	V <sub>GS</sub> = -10V	32.8		nC
			V <sub>GS</sub> = -4.5V	15.3		
Gate-to-Source Charge	Q <sub>GS</sub>	V <sub>DS</sub> = -15V, V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -8A		6.6		nC
Gate-to-Drain Charge	Q <sub>GD</sub>			4.6		nC
<b>Switch Characteristics</b>						
Turn-On Delay Time	t <sub>D(ON)</sub>	V <sub>DS</sub> = -15V, V <sub>GS</sub> = -10V, I <sub>D</sub> = -8A, R <sub>G</sub> = 3Ω		8		ns
Rise Time	t <sub>R</sub>			17		
Turn-Off Delay Time	t <sub>D(OFF)</sub>			40		
Fall Time	t <sub>F</sub>			32		

PACKAGE OUTLINE DIMENSIONS

TDFN-2x2-6BL

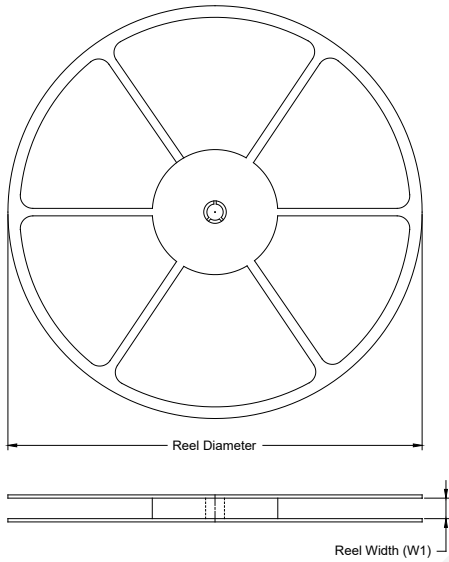


Symbol	Dimensions In Millimeters		
	MIN	MOD	MAX
A	0.700	0.750	0.800
A1	0.000	0.020	0.050
A2	0.200 REF		
b	0.250	0.300	0.350
D	1.900	2.000	2.100
E	1.900	2.000	2.100
D1	0.850	0.950	1.050
E1	1.050	1.150	1.250
D2	0.315	0.365	0.415
E2	0.650	0.700	0.750
e	0.650 BSC		
k	0.370 REF		
k1	0.150 REF		
k2	0.360 REF		
L	0.225	0.275	0.325
L1	0.125 REF		
L2	0.200 REF		
L3	0.200 REF		

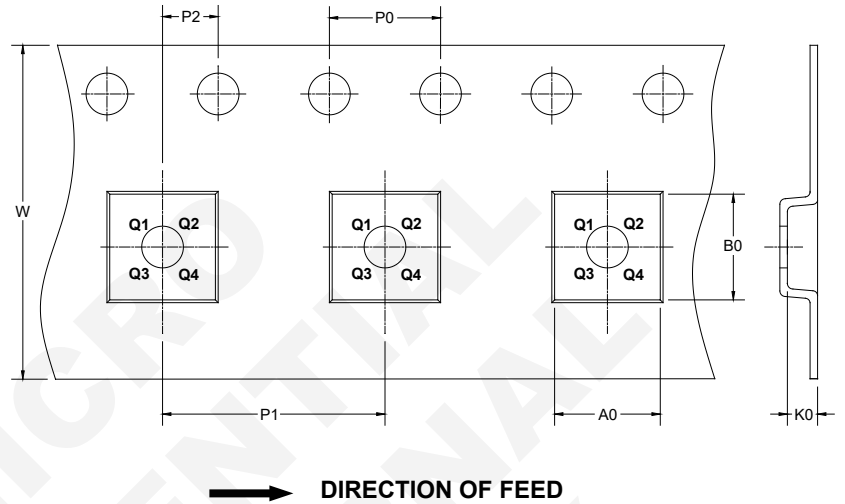
NOTE: This drawing is subject to change without notice.

TAPE AND REEL INFORMATION

REEL DIMENSIONS



TAPE DIMENSIONS



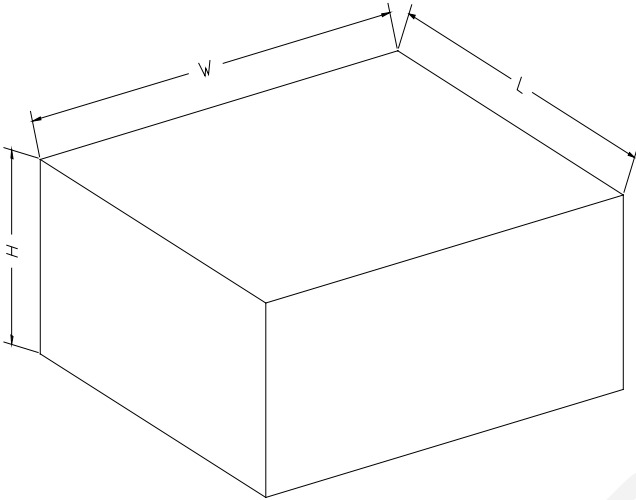
NOTE: The picture is only for reference. Please make the object as the standard.

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
TDFN-2×2-6BL	7"	9.5	2.30	2.30	1.00	4.0	4.0	2.0	8.0	Q1

DD0001

## 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
7" (Option)	368	227	224	8
7"	442	410	224	18

DD0002