

FEATURES

- Low On-State Resistance
- Ultra-Low Q_G and Q_{GD}
- ESD Diode Protected Gate
- Ultra-Small Footprint "Tiny FET"
- HBM > 2kV

ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	VALUE	UNITS
Drain-to-Source Voltage		V _{DS}	30	V
Gate-to-Source Voltage		V _{GS}	±8	V
Drain Current ⁽¹⁾	T _A = +25°C	I _D	1.5	A
	T _A = +70°C		1.1	
Drain Current (Pulse) ⁽²⁾		I _{DM}	4.5	A
Total Dissipation	T _A = +25°C	P _D	390	mW
	T _A = +70°C		250	
Junction Temperature		T _J	150	°C
Storage Temperature Range		T _{STG}	-55 to +150	°C
Lead Temperature (Soldering, 10s)			+260	°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.

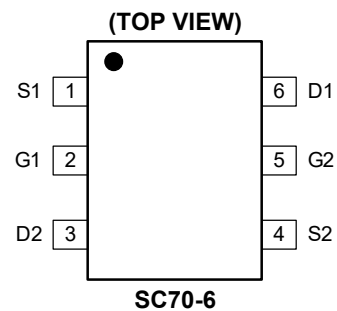
NOTES:

1. The current will be limited by package, PCB, thermal design and operating temperature.
2. $t_{PULSE} < 10\mu\text{s}$.

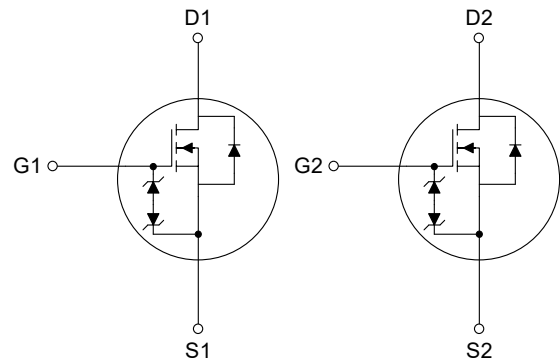
PRODUCT SUMMARY

$R_{DS(on)}$ (TYP) $V_{GS} = 4.5\text{V}$	$R_{DS(on)}$ (MAX) $V_{GS} = 4.5\text{V}$	I_D (MAX) $T_A = +25^\circ\text{C}$
160m Ω	200m Ω	1.5A

PIN CONFIGURATION



EQUIVALENT CIRCUIT



APPLICATIONS

- Load Switch Application
- High-Speed Line Driver
- Relay Driver Application
- Handheld and Mobile Applications
- I/O Expansion Switch
- IR Blaster Application

PACKAGE/ORDERING INFORMATION

MODEL	PACKAGE DESCRIPTION	SPECIFIED TEMPERATURE RANGE	ORDERING NUMBER	PACKAGE MARKING	PACKING OPTION
SGMDE18230	SC70-6	-55°C to +150°C	SGMDE18230TC6G/TR	2KWXX	Tape and Reel, 3000

MARKING INFORMATION

NOTE: XX = Date Code.

YYY X X

Date Code - Week

Date Code - Year

Serial Number

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.

ESD SENSITIVITY CAUTION

These devices have limited built-in ESD protection. The leads should be shorted together or the device placed in conductive foam during storage or handling to prevent electrostatic damage to the MOS gates.

DISCLAIMER

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

THERMAL RESISTANCE

PARAMETER	SYMBOL	TYP	UNITS
Junction-to-Ambient Thermal Resistance ⁽¹⁾	R _{θJA}	320	°C/W

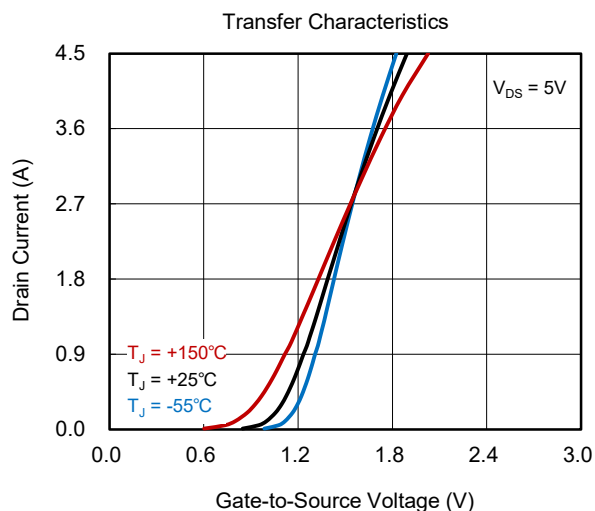
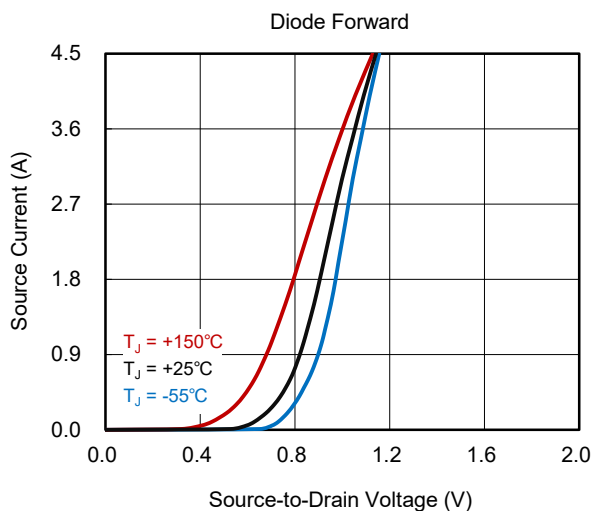
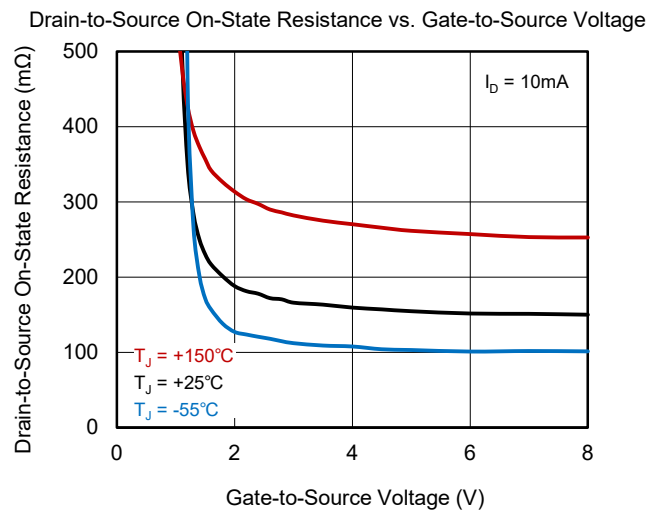
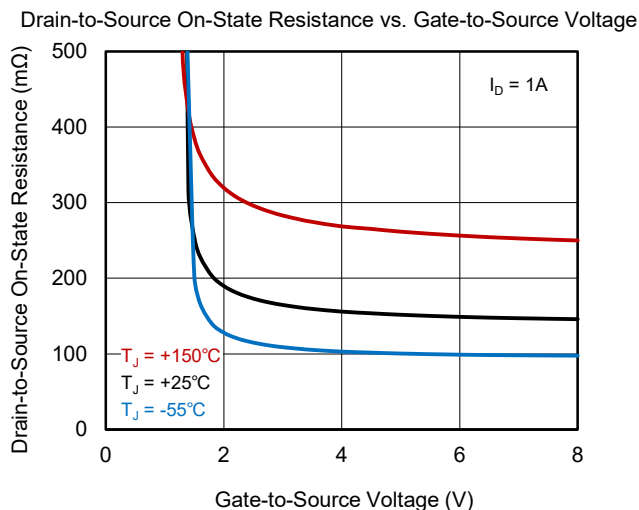
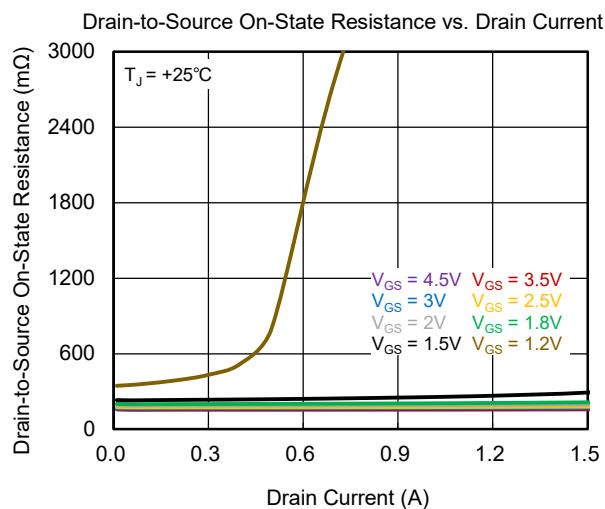
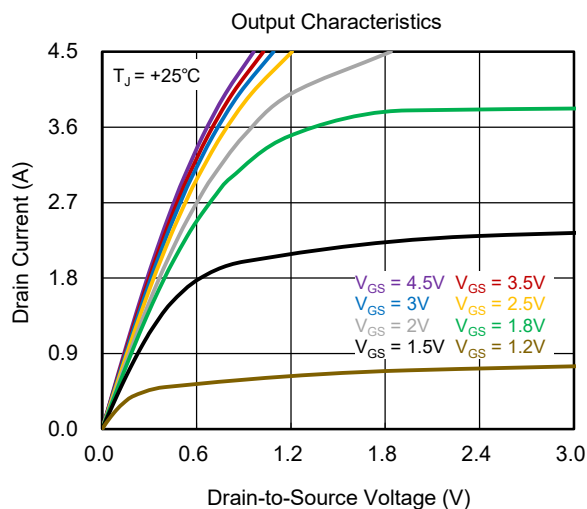
NOTE: 1. R_{θJA} is determined with the device mounted on one square inch of copper pad, 2oz copper on FR4 board.

ELECTRICAL CHARACTERISTICS

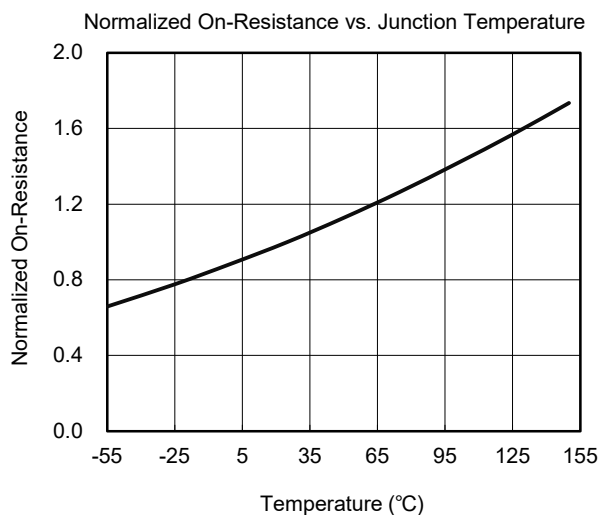
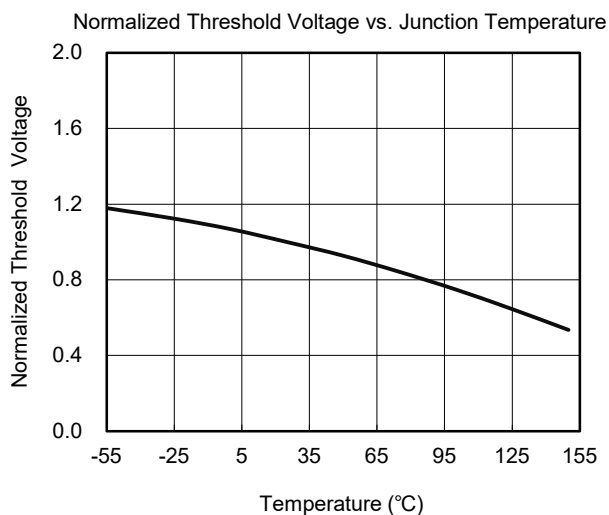
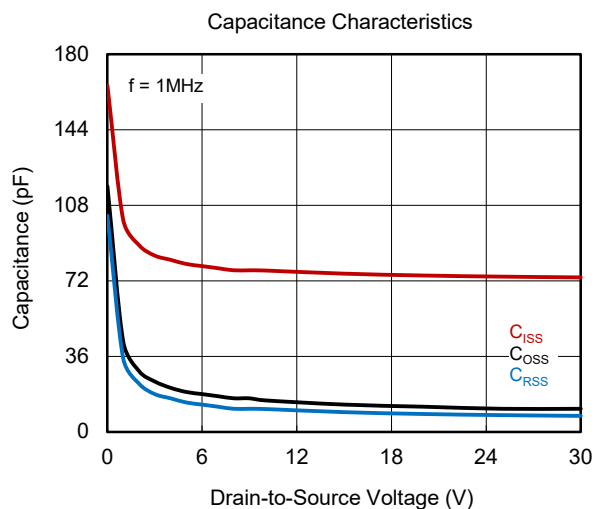
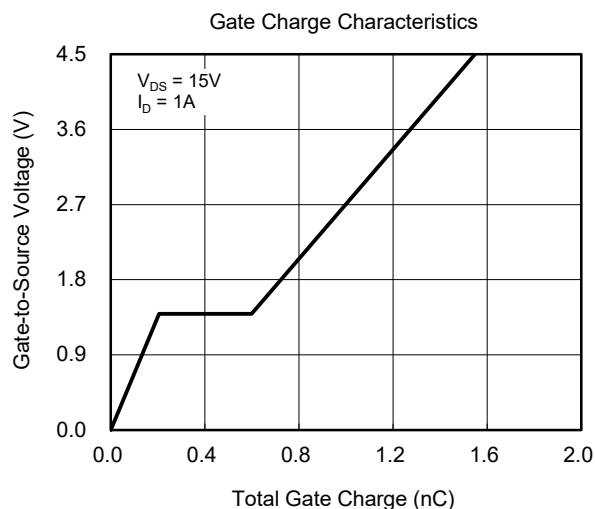
(T_A = +25°C, unless otherwise noted.)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Static OFF Characteristics						
Drain-to-Source Breakdown Voltage	V _{BR_DSS}	V _{GS} = 0V, I _D = 250μA	30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{GS} = 0V, V _{DS} = 24V			1	μA
Gate-to-Source Leakage Current	I _{GSS}	V _{GS} = ±8V, V _{DS} = 0V			±10	μA
Static ON Characteristics						
Gate Threshold Voltage	V _{GS_TH}	V _{GS} = V _{DS} , I _D = 250μA	0.4	0.65	1	V
Static Drain-to-Source On-State Resistance	R _{DS(on)}	V _{GS} = 4.5V, I _D = 1A		160	200	mΩ
		V _{GS} = 2.5V, I _D = 0.6A		180	235	
		V _{GS} = 1.8V, I _D = 0.4A		205	270	
		V _{GS} = 1.5V, I _D = 0.1A		235	470	
		V _{GS} = 1.2V, I _D = 10mA		355	710	
Diode Characteristics						
Forward Diode Voltage	V _{FSD}	V _{GS} = 0V, I _S = 1A		0.8	1.2	V
Dynamic Characteristics						
Input Capacitance	C _{ISS}	V _{GS} = 0V, V _{DS} = 15V, f = 1MHz		75		pF
Output Capacitance	C _{OSS}			13		
Reverse Transfer Capacitance	C _{RSS}			9		
Total Gate Charge	Q _G	V _{GS} = 4.5V, V _{DS} = 15V, I _D = 1A		1.5		nC
Gate-to-Source Charge	Q _{GS}			0.2		
Gate-to-Drain Charge	Q _{GD}			0.4		
Switch Characteristics						
Turn-On Delay Time	t _{D_ON}	V _{GS} = 4.5V, V _{DS} = 15V, I _D = 1A, R _G = 3Ω		8.7		ns
Rise Time	t _R			16.4		
Turn-Off Delay Time	t _{D_OFF}			66.1		
Fall Time	t _F			28.6		

TYPICAL PERFORMANCE CHARACTERISTICS



TYPICAL PERFORMANCE CHARACTERISTICS (continued)



REVISION HISTORY

NOTE: Page numbers for previous revisions may differ from page numbers in the current version.

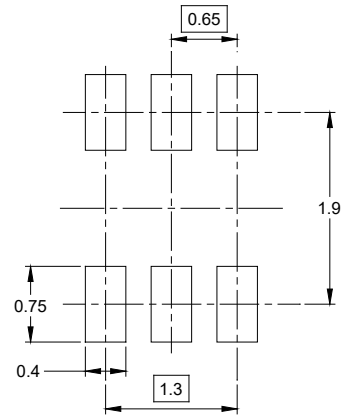
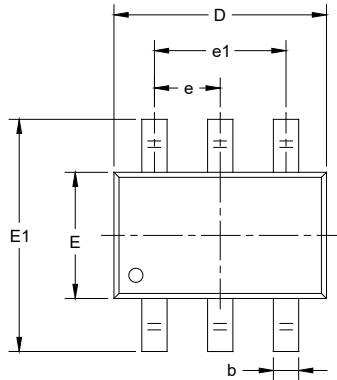
Changes from Original to REV.A (JULY 2026)

Page

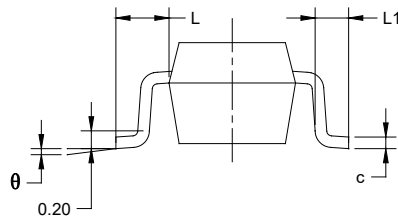
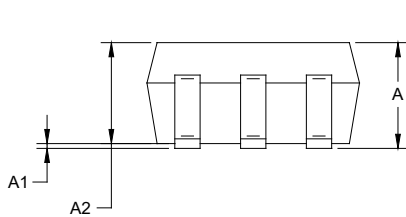
Changed from product preview to production data.....All

PACKAGE OUTLINE DIMENSIONS

SC70-6



RECOMMENDED LAND PATTERN (Unit: mm)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A	0.800	1.100	0.031	0.043
A1	0.000	0.100	0.000	0.004
A2	0.800	1.000	0.031	0.039
b	0.150	0.350	0.006	0.014
c	0.080	0.220	0.003	0.009
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.65 TYP		0.026 TYP	
e1	1.300 BSC		0.051 BSC	
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

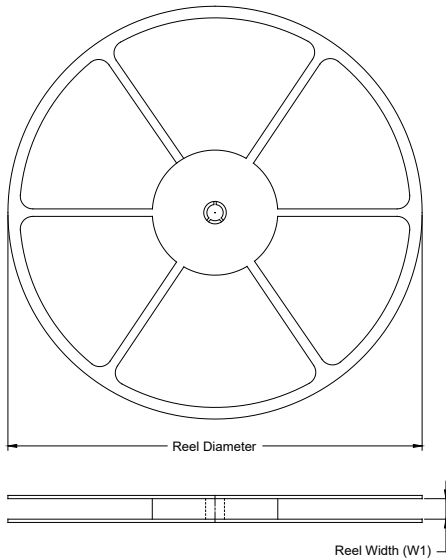
NOTES:

1. Body dimensions do not include mold flash or protrusion.
2. This drawing is subject to change without notice.

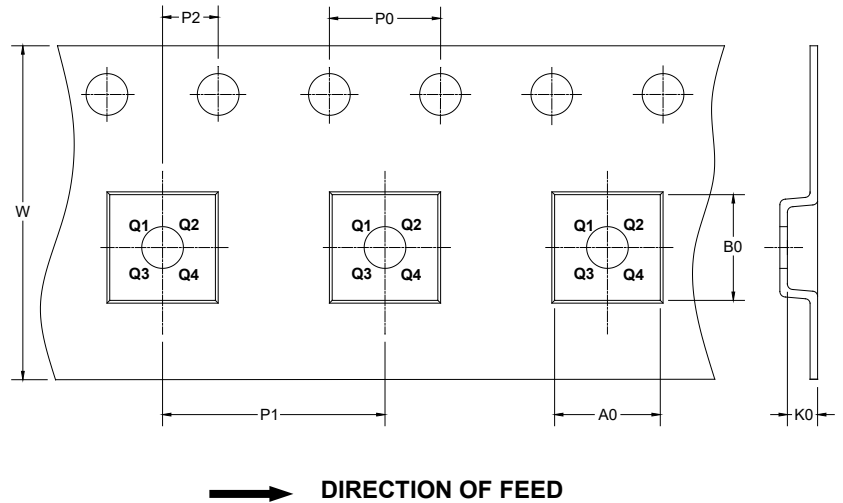
PACKAGE INFORMATION

TAPE AND REEL INFORMATION

REEL DIMENSIONS



TAPE DIMENSIONS



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

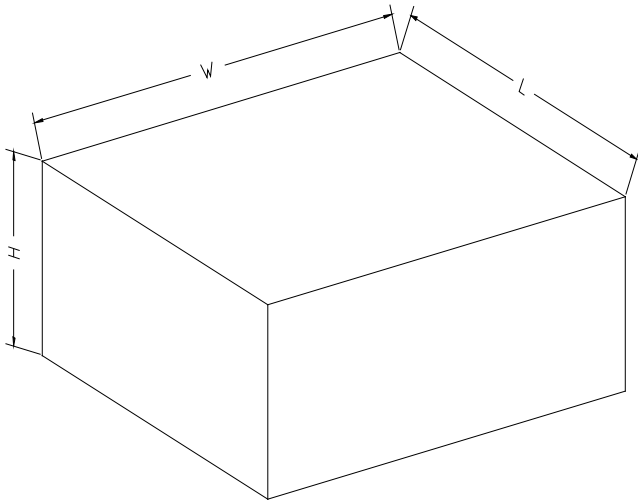
KEY PARAMETER LIST OF TAPE AND REEL

Package Type	Reel Diameter	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P0 (mm)	P1 (mm)	P2 (mm)	W (mm)	Pin1 Quadrant
SC70-6	7"	9.5	2.40	2.50	1.20	4.0	4.0	2.0	8.0	Q3

DD0001

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

DD0002