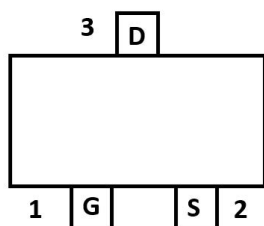
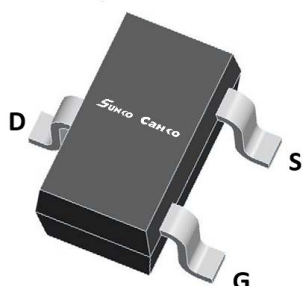


N-Channel Enhancement Mode Field Effect Transistor



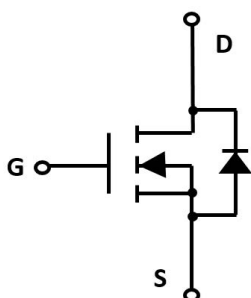
Product Summary

• V_{DS}	20V
• I_D	3.0A
• $R_{DS(ON)}$ (at $V_{GS}=4.5V$)	<70 mohm
• $R_{DS(ON)}$ (at $V_{GS}=2.5V$)	<98 mohm

General Description

- Trench Power LV MOSFET technology
- High Power and current handing capability

SOT-323



Applications

- PWM application
- Load switch

■ Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter		Symbol	Limit	Unit
Drain-source Voltage		V_{DS}	20	V
Gate-source Voltage		V_{GS}	± 10	V
Drain Current	$T_A=25^\circ\text{C}$ @ Steady State	I_D	3.0	A
	$T_A=70^\circ\text{C}$ @ Steady State		2.4	
Pulsed Drain Current ^A		I_{DM}	14	A
Total Power Dissipation @ $T_A=25^\circ\text{C}$		P_D	0.25	W
Thermal Resistance Junction-to-Ambient @ Steady State ^B		$R_{\theta JA}$	500	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature Range		T_J, T_{STG}	-55~+150	$^\circ\text{C}$

■ Ordering Information

PREFERRED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
SCL2102W	F2	TS2.	3000	30000	120000	7" reel

■ Electrical Characteristics (T_J=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V, I _D =250μA	20			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =20V,V _{GS} =0V			1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} = ±10V, V _{DS} =0V			±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D =250μA	0.55	0.78	1.1	V
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} = 4.5V, I _D =2.5A		57	70	mΩ
		V _{GS} = 2.5V, I _D =2.0A		72	98	
Diode Forward Voltage	V _{SD}	I _S =2.5A,V _{GS} =0V			1.2	V
Maximum Body-Diode Continuous Current	I _S				3.0	A
Dynamic Parameters						
Input Capacitance	C _{iss}	V _{DS} =10V,V _{GS} =0V,f=1MHZ		220		pF
Output Capacitance	C _{oss}			34		
Reverse Transfer Capacitance	C _{rss}			26		
Switching Parameters						
Total Gate Charge	Q _g	V _{GS} =4.5V,V _{DS} =10V,I _D =2.5A		3.61		nC
Gate Source Charge	Q _{gs}			0.88		
Gate Drain Charge	Q _{gd}			0.77		
Turn-on Delay Time	t _{D(on)}	V _{GS} =4.5V,V _{DD} =10V, R _L =1.5Ω, R _{GEN} =3Ω		6.8		ns
Turn-on Rise Time	t _r			57		
Turn-off Delay Time	t _{D(off)}			14		
Turn-off Fall Time	t _f			53		

A. Pulse Test: Pulse Width ≤ 300μs, Duty cycle ≤ 2%.

B. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.

■ Typical Performance Characteristics

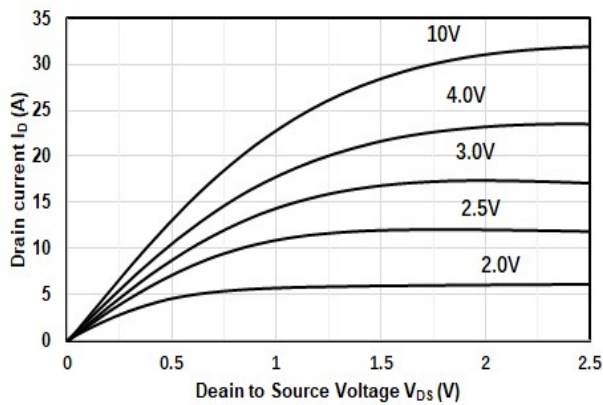


Figure1. Output Characteristics

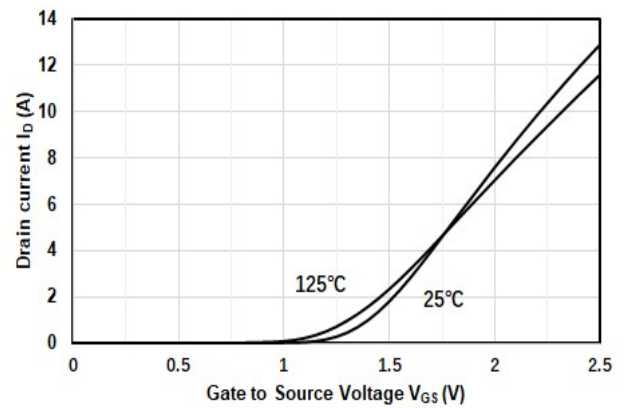


Figure2. Transfer Characteristics

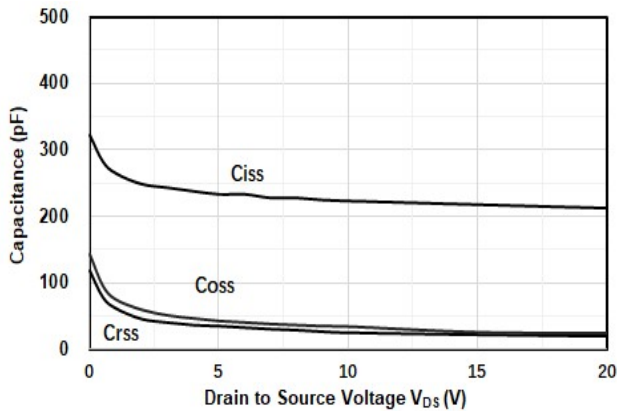


Figure3. Capacitance Characteristics

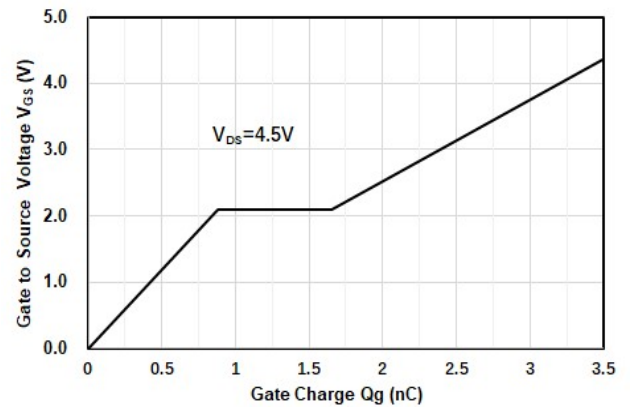


Figure4. Gate Charge

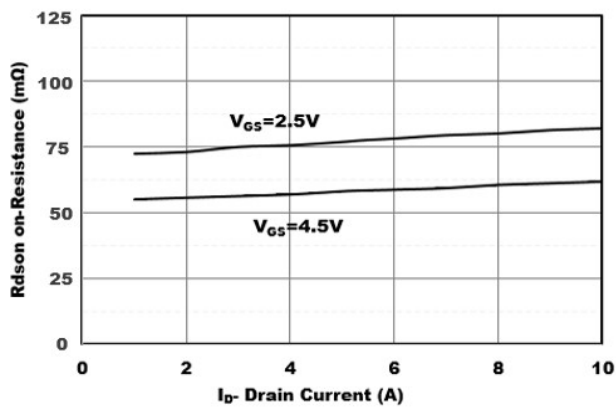


Figure5. Drain-Source on Resistance

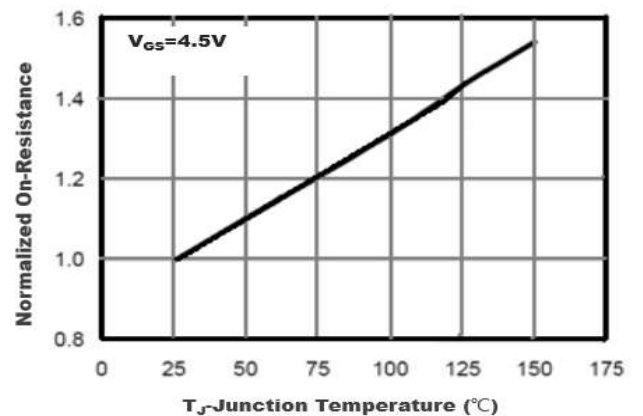


Figure6. Drain-Source on Resistance

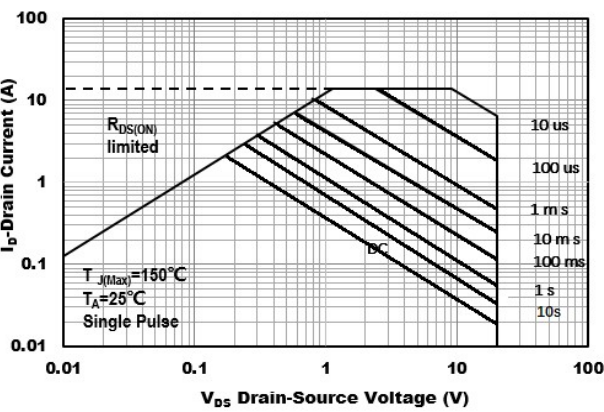


Figure7. Safe Operation Area

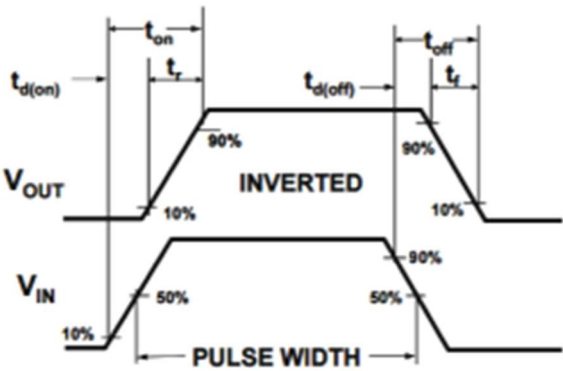
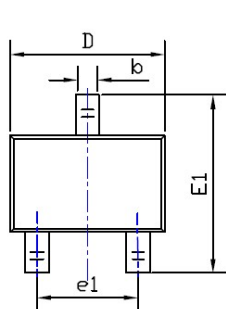
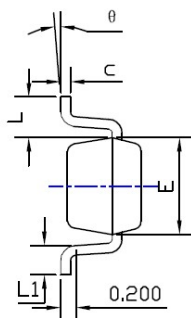


Figure8. Switching wave

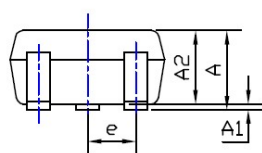
■SOT-323 Package Information



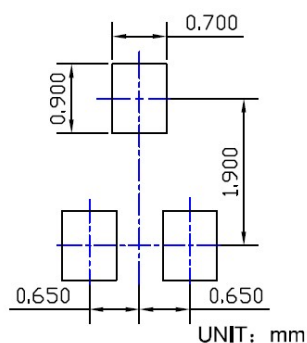
TOP VIEW



SIDE VIEW



SIDE VIEW



UNIT: mm

SUGGESTED SOLDER PAD LAYOUT

SYMBOL	DIMENSIONS			DIMENSIONS		
	INCHES			Millimeter		
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A	0.035	---	0.043	0.900	---	1.100
A1	0.000	---	0.004	0.000	---	0.100
A2	0.035	0.037	0.039	0.900	0.950	1.000
b	0.006	0.012	0.016	0.150	0.300	0.400
c	0.004	---	0.010	0.100	---	0.250
D	0.071	0.079	0.087	1.800	2.000	2.200
E	0.045	0.049	0.053	1.150	1.250	1.350
E1	0.085	0.091	0.096	2.150	2.300	2.450
e	0.026TYP			0.650TYP		
e1	0.047	0.051	0.055	1.200	1.300	1.400
L	0.021REF			0.525REF		
L1	0.010	0.014	0.018	0.260	0.360	0.460
θ	0°	---	8°	0°	---	8°

NOTE:

- 1.PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.
- 2.TOLERANCE 0.1mm UNLESS OTHERWISE SPECIFIED.
- 3.THE PAD LAYOUT IS FOR REFERENCE PURPOSES ONLY.

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