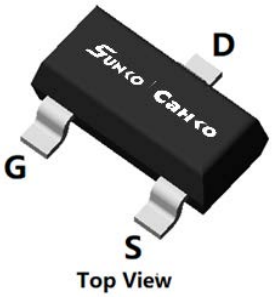
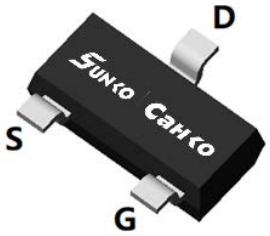
N-Channel Enhancement Mode Field Effect Transistor

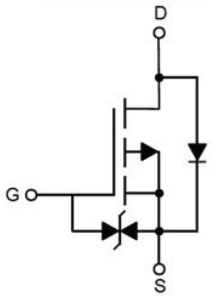


Top View



Bottom View

SOT-23



Product Summary

- V_{DS} 20 V
- I_D 0.9 A
- $R_{DS(ON)}$(at V_{GS}=4.5V) ＜300 mohm
- $R_{DS(ON)}$(at V_{GS}=2.5V) ＜400 mohm
- $R_{DS(ON)}$(at V_{GS}=1.8V) ＜700 mohm
- ESD Protected Up to 2.0KV (HBM)

General Description

- Trench Power LV MOSFET technology
- High Power and current handing capability
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free

Applications

- PWM application
- Load switch

■ Absolute Maximum Ratings (T_A=25℃unless otherwise noted)

Parameter		Symbol	Limit	Unit
Drain-source Voltage		V_{DS}	20	V
Gate-source Voltage		V_{GS}	±12	V
Drain Current	T_A=25℃ @ Steady State	I_D	0.9	A
	T_A=70℃ @ Steady State		0.7	
Pulsed Drain Current [A]		I_{DM}	3.5	A
Total Power Dissipation @ T_A=25℃		P_D	0.35	W
Thermal Resistance Junction-to-Ambient @ Steady State		$R_{\theta JA}$	357	℃/ W
Junction and Storage Temperature Range		T_J ,T_{STG}	-55～+150	℃

■ Ordering Information

PREFERED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
SCL3134KA	F2	34KA.	3000	30000	120000	7“ reel

■ Electrical Characteristics (T_J=25℃ 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		2.5	±10	μA
		V_{GS}= ±8V, V_{DS}=0V		500	±2000	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}= V_{GS}, I_D=250μA	0.35	0.75	1.1	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}= 4.5V, I_D=0.9A		220	300	mΩ
		V_{GS}= 2.5V, I_D=0.45A		290	400	
		V_{GS}= 1.8V, I_D=0.2A		420	700	
Diode Forward Voltage [C]	V_{SD}	I_S=0.9A,V_{GS}=0V		0.9	1.2	V
Maximum Body-Diode Continuous Current	I_S				0. 9	A
Gate Resistance	Rg	f=1 MHz, Open drain		50		Ω
Dynamic Parameters [B]						
Input Capacitance	C_{iss}	V_{DS}=10V,V_{GS}=0V,f=1MHZ		33		pF
Output Capacitance	C_{oss}			20		
Reverse Transfer Capacitance	C_{rss}			10		
Switching Parameters [B]						
Total Gate Charge	Q_g	V_{GS}=4.5V,V_{DS}=10V,I_D=0.5A		0.8		nC
Gate Source Charge	Q_{gs}			0.3		
Gate Drain Charge	Q_{gd}			0.15		
Reverse Recovery Chrage	Q_{rr}	I_F=0.5A, di/dt=20A/us		0.4		
Reverse Recovery Time	t_{rr}			14.4		ns
Turn-on Delay Time	$t_{D(on)}$	VGENG$_{GS}$=4.5V,V_{DD}=10V,R_G=10Ω,I_D=500mA		4		
Turn-on Rise Time	t_r			18.8		
Turn-off Delay Time	$t_{D(off)}$			10		
Turn-off Fall Time	t_f			23		

A. Repetitive Rating: Pulse width limited by maximum junction temperature.
B. These parameters have no way to verify.
C. Pulse Test: Pulse Width≤300us, Duty Cycle≤0.5%.

■ Typical Performance Characteristics

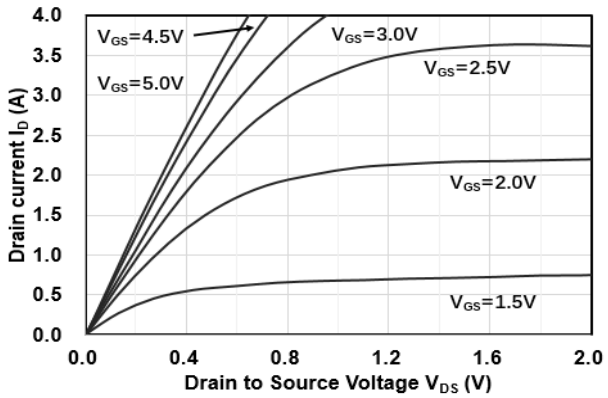


Figure1. Output Characteristics

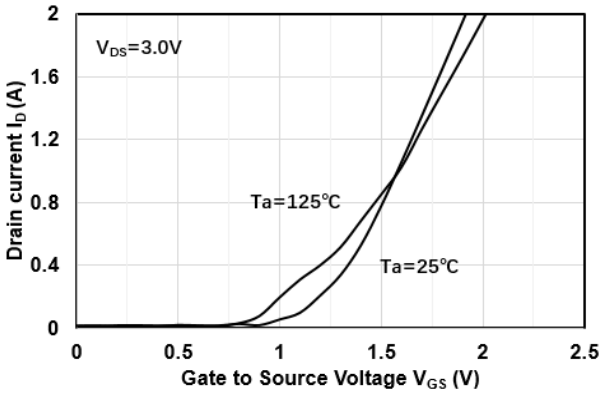


Figure2. Transfer Characteristics

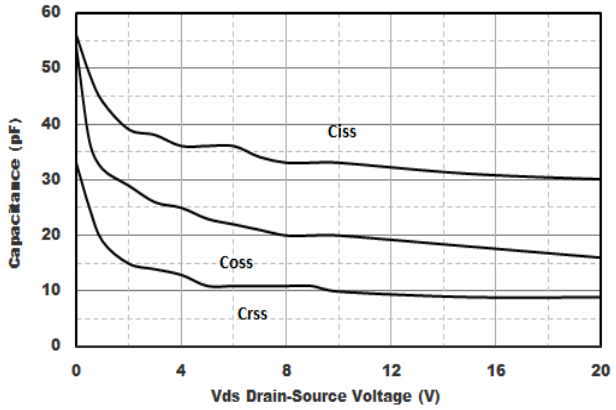


Figure3. Capacitance Characteristics

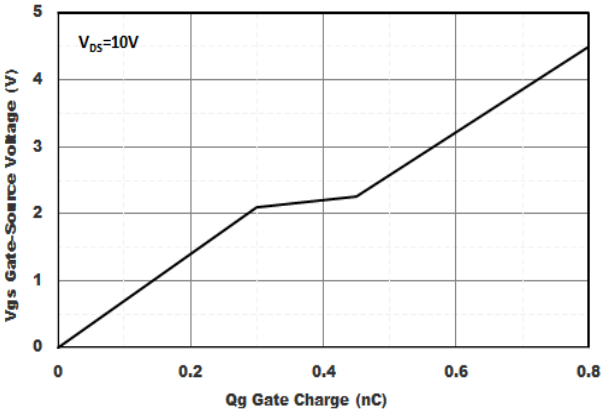


Figure4. Gate Charge

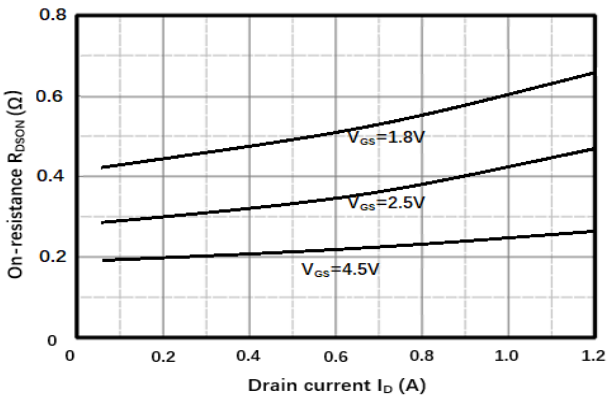


Figure5. Drain-Source on Resistance

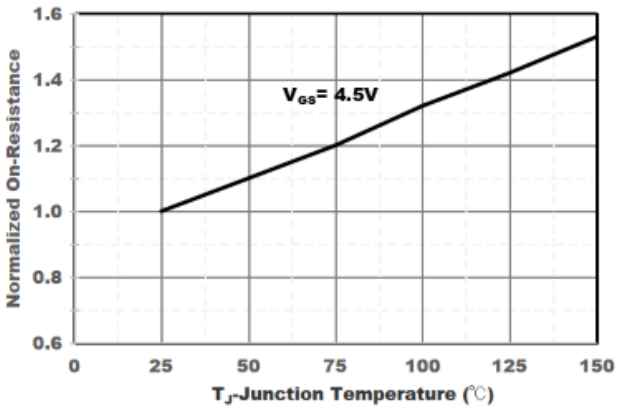


Figure6. Drain-Source on Resistance

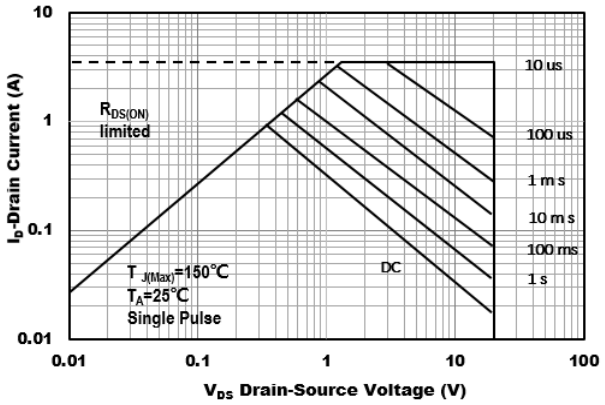


Figure7. Safe Operation Area

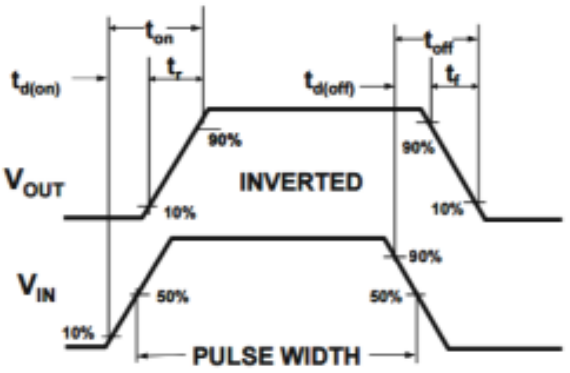
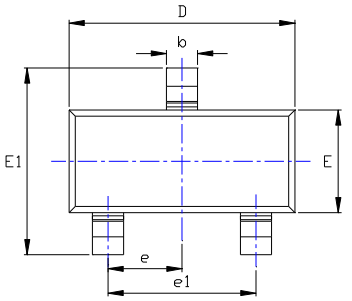
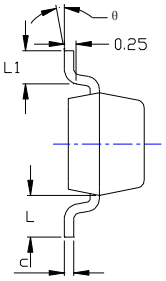


Figure8. Switching wave

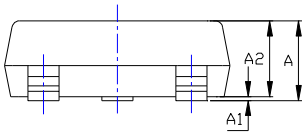
■SOT-23 Package information



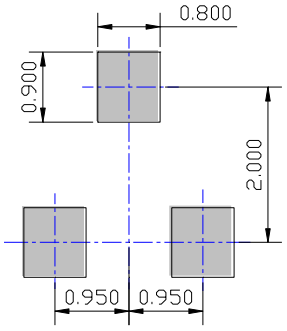
TOP VIEW



SIDE VIEW



SIDE VIEW



UNIT：mm

SUGGESTED SOLDER PAD LAYOUT

DIMENSIONS				
SYMBOL	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.035	0.045	0.900	1.150
A1	0.000	0.004	0.000	0.100
A2	0.035	0.041	0.900	1.050
b	0.012	0.020	0.300	0.500
c	0.004	0.008	0.100	0.200
D	0.110	0.118	2.800	3.000
E	0.047	0.055	1.200	1.400
E1	0.089	0.100	2.250	2.550
e	0.037TYP		0.950TYP	
e1	0.071	0.079	1.800	2.000
L	0.022REF		0.550REF	
L1	0.012	0.200	0.300	0.500
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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