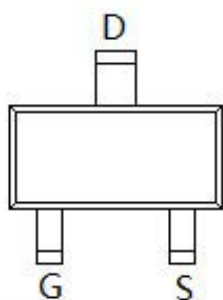
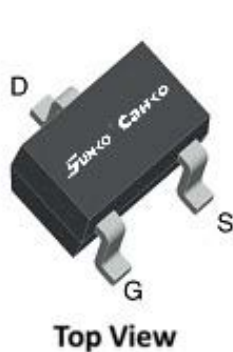
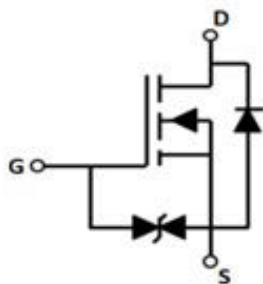


N-Channel Enhancement Mode Field Effect Transistor



SOT-523



Product Summary

- V_{DS} 20 V
- I_D 0.5 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

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}	± 12	V
Drain Current	$T_A=25^\circ\text{C}$ @ Steady State	I_D	0.5	A
	$T_A=70^\circ\text{C}$ @ Steady State		0.4	
Pulsed Drain Current ^A		I_{DM}	3.3	A
Total Power Dissipation @ $T_A=25^\circ\text{C}$		P_D	0.18	W
Thermal Resistance Junction-to-Ambient @ Steady State		$R_{\theta JA}$	694	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature Range		T_J, T_{STG}	-55~+150	$^\circ\text{C}$

■ Ordering Information

PREFERED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
SCL3134KAE	F2	34A	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		2.0	±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 =0.5A		220	300	mΩ
		V _{GS} = 2.5V, I _D =0.4A		290	400	
		V _{GS} = 1.8V, I _D =0.2A		420	700	
Diode Forward Voltage ^C	V _{SD}	I _S =0.5A, V _{GS} =0V			1.2	V
Gate Resistance	R _g	f=1 MHz, Open drain		50		Ω
Maximum Body-Diode Continuous Current	I _S				0.5	A
Dynamic Parameters ^B						
Input Capacitance	C _{iss}	V _{DS} =10V, V _{GS} =0V, f=1MHZ		56		pF
Output Capacitance	C _{oss}			20		
Reverse Transfer Capacitance	C _{rss}			2.5		
Switching Parameters ^B						
Total Gate Charge	Q _g	V _{GS} =4.5V, V _{DS} =10V, I _D =0.5A		1		nC
Gate Source Charge	Q _{gs}			0.28		
Gate Drain Charge	Q _{gd}			0.22		
Reverse Recovery Chrage	Q _{rr}	I _F =0.5A, di/dt=20A/us		0.4		
Reverse Recovery Time	t _{rr}			14.4		
Turn-on Delay Time	t _{D(on)}	V _{GS} =4.5V, V _{DD} =10V, R _G =10Ω, I _D =500mA		2		ns
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

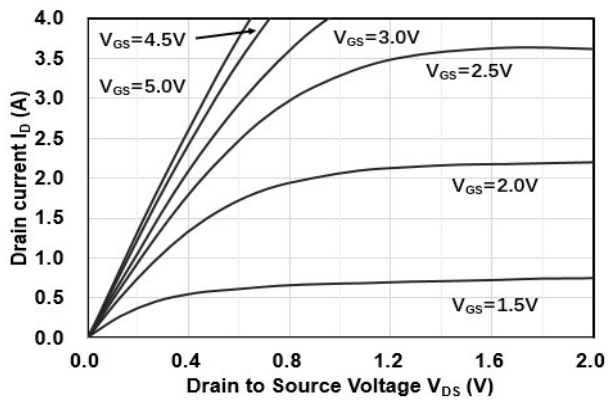


Figure1. Output Characteristics

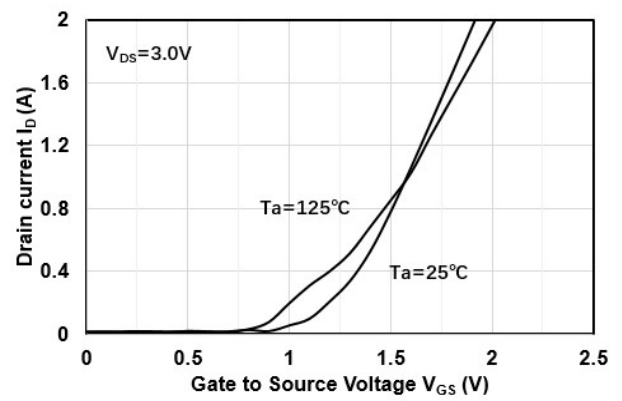


Figure2. Transfer Characteristics

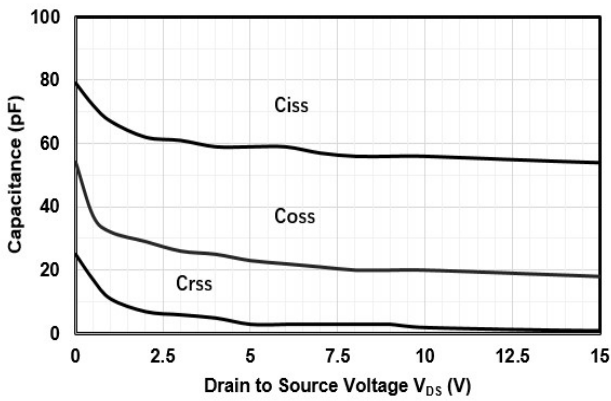


Figure3. Capacitance Characteristics

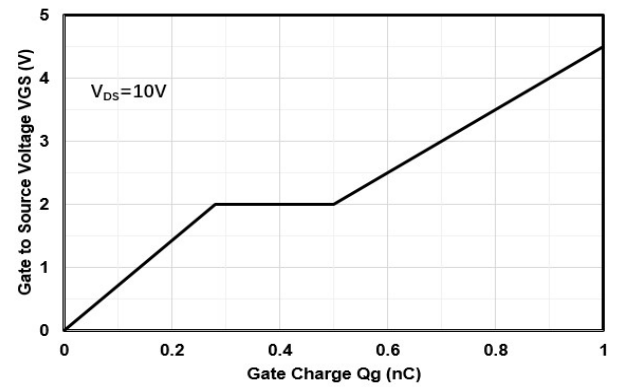


Figure4. Gate Charge

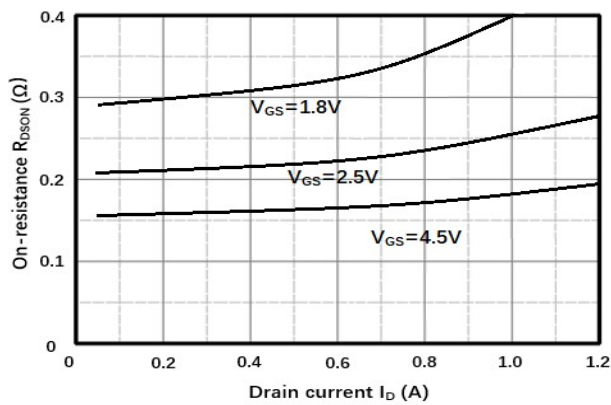


Figure5. Drain-Source on Resistance

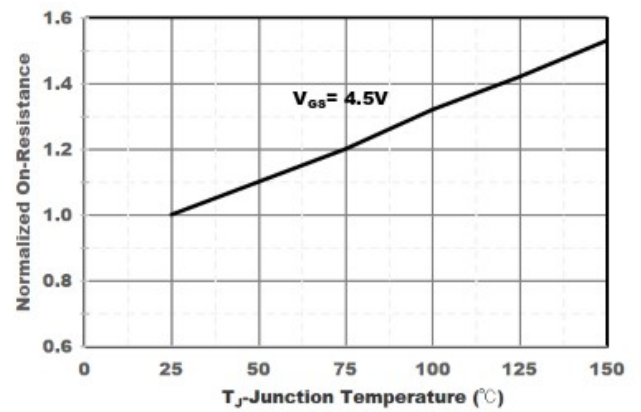


Figure6. Drain-Source on Resistance

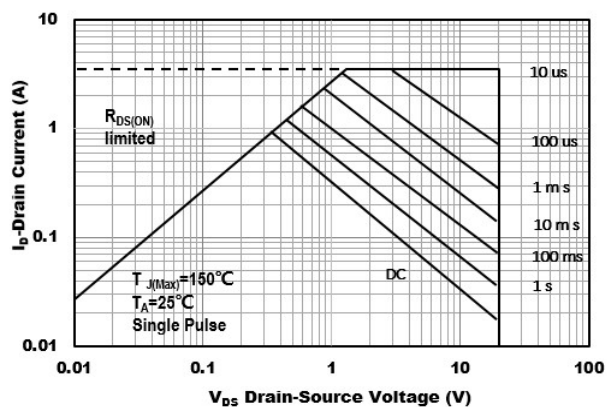


Figure7. Safe Operation Area

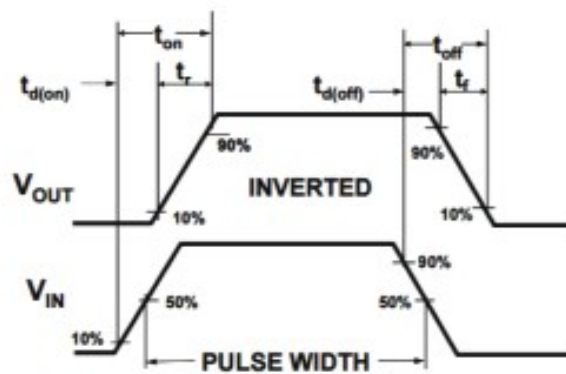
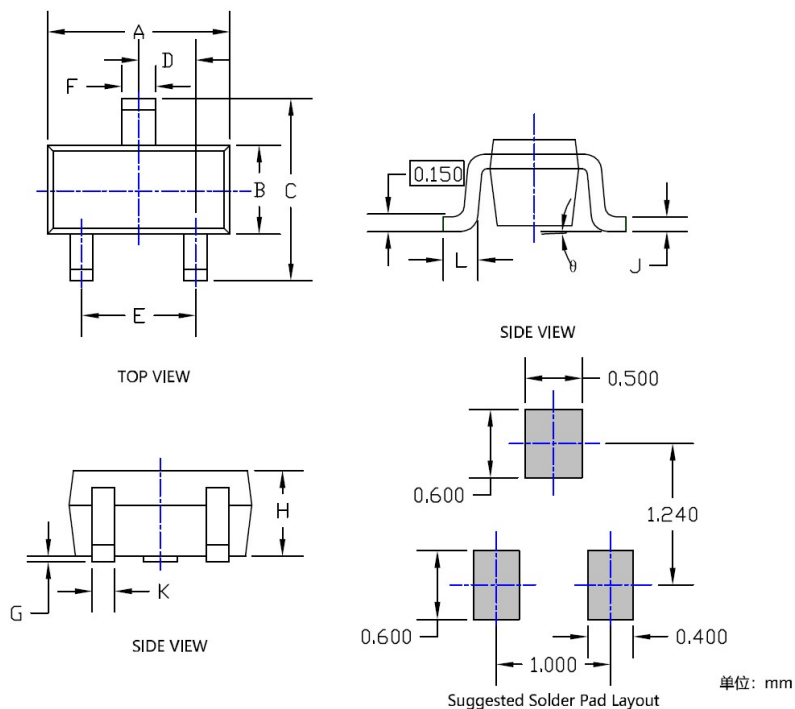


Figure8. Switching wave

■SOT-523 Package information



SYMBOL	DIMENSIONS					
	INCHES			Millimeter		
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A	0.059	0.063	0.067	1.500	1.600	1.700
B	0.030	0.031	0.033	0.750	0.800	0.850
C	0.057	0.063	0.069	1.450	1.600	1.750
D	0.020TYP			0.500TYP		
E	0.035	0.039	0.043	0.900	1.000	1.100
F	0.010	0.014	0.018	0.250	0.350	0.450
G	0.000	---	0.004	0.000	---	0.100
H	0.024	0.028	0.031	0.600	0.700	0.800
J	0.004	---	0.008	0.100	---	0.200
K	0.006	0.010	0.014	0.150	0.250	0.350
L	0.010	---	0.018	0.260	---	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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