

N-Channel Enhancement Mode MOSFET

1 Features

- $V_{DS} = 60V$, $I_D = 0.3A$
- $R_{DS(ON)} < 3\Omega$ @ $V_{GS}=10V$
- $R_{DS(ON)} < 4\Omega$ @ $V_{GS}=4.5V$
- High density cell design for extremely low $R_{DS(ON)}$
- ESD protected up to 2KV
- Conventional SOT-23 Package

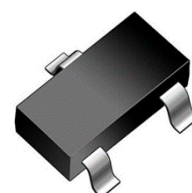
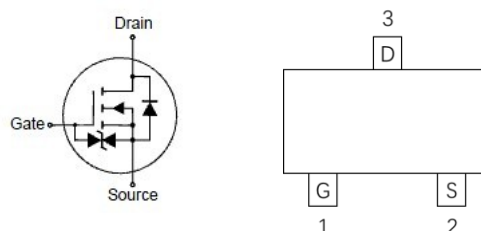
2 Applications

- Direct logic-level interface: TTL/CMOS
- Drivers: relays, solenoids, lamps, hammers, display, memories, transistors, etc. Load switch
- Battery operated systems
- Solid-state relays

3 Description

The SLMT37002K provide the best combination of fast switching, low on-resistance and cost-effectiveness. The MOSFET is the N-Channel enhancement mode power field effect transistors with high cell density, trench technology. This high density process and design have been optimized switching performance and especially tailored to minimize on-state resistance.

4 Pin Configuration and Top View



SOT-23

5 Device Information

PART NUMBER	PACKAGE	BODY SIZE (NOM)
SLMT37002K	SOT-23	2.90 mm x 2.40mm

6 Absolute maximum Ratings @25°C

RATING	SYMBOL	VALUE	UNITS
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	300	mA
Pulsed Drain Current	I_{DP}	800	mA
Total power dissipation	P_D	0.35	W
Channel temperature	T_J	-55 to +150	°C
Range of storage temperature	T_{STG}	-55 to +150	°C
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	357	°C/W

7 Electrical characteristics (@25°C unless otherwise specified)

PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNITS
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	I _D = 250μA, V _{GS} = 0V	60			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1		2.5	V
Drain Cut Off Current	I _{DSS}	V _{DS} = 60V, V _{GS} = 0V			1	μA
Gate Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			10	μA
Drain-Source ON Resistance	R _{DS(ON)}	V _{GS} = 10V, I _D = 0.5A			3	Ω
		V _{GS} = 4.5V, I _D = 0.2A			4	Ω
Forward Transconductance	g _{FS}	V _{DS} = 10V, I _D = 0.2A	80			ms
Dynamic Characteristics						
Input Capacitance	C _{ISS}	V _{DS} = 25V, V _{GS} = 0V, f = 1MHz			35	pF
Reverse Transfer Capacitance	C _{RSS}				5	pF
Output Capacitance	C _{OSS}				10	pF
Total Gate Charge	Qg	V _{DS} = 15V,I _D =0.2A,V _{GS} =5V			0.8	nC
Turn-On Delay Time	t _{d(on)}	V _{DD} = 30V,R _L = 150Ω, I _D = 0.2A,V _{GS} = 10V, R _{GEN} = 10Ω			20	ns
Turn-Off Delay Time	t _{d(off)}				40	ns
Diode Characteristics						
Diode Forward Voltage	V _{SD}	I _S =0.2A,V _{GS} =0V		0.8	1.3	V

8 Typical Characteristics

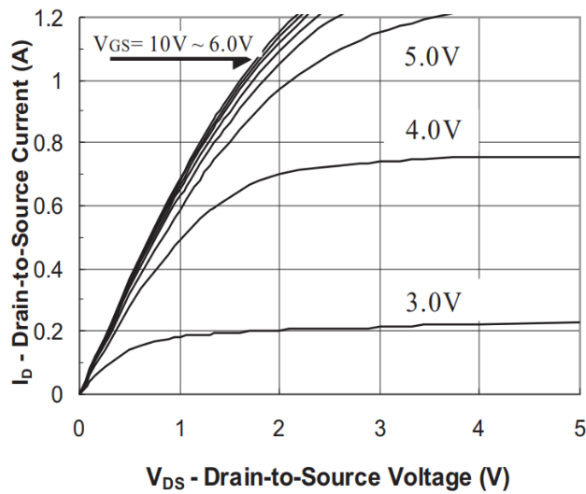


Fig 1: Output Characteristic

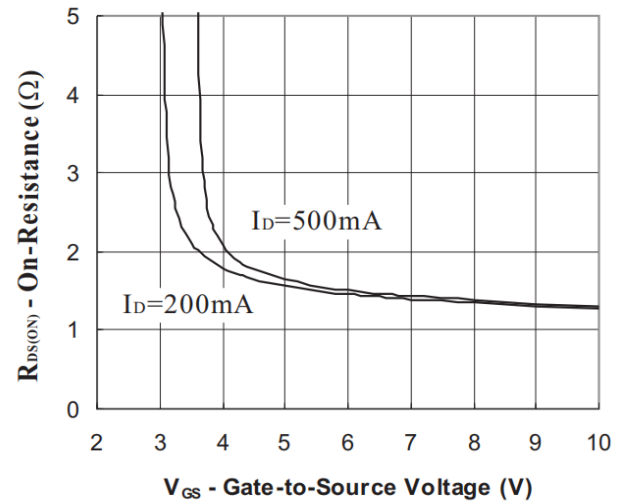


Fig 2: On Resistance vs Gate to Source Voltage

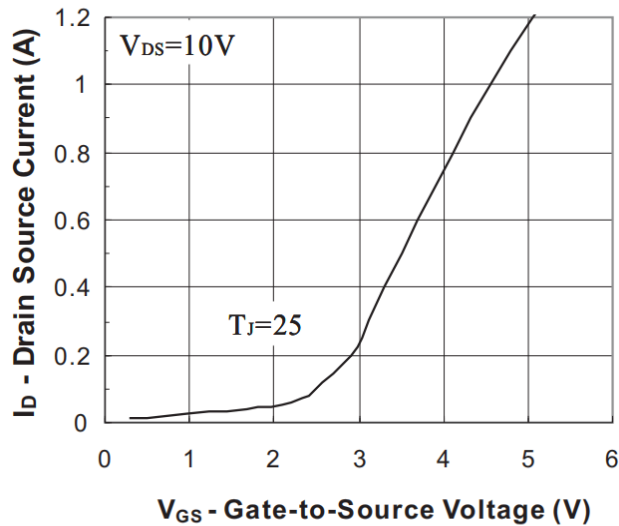


Fig 3: Transfer Characteristic

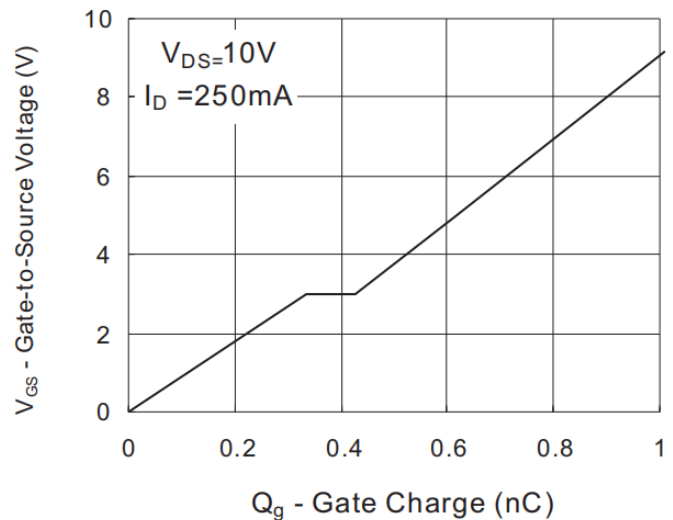


Fig 4: Gate Charge

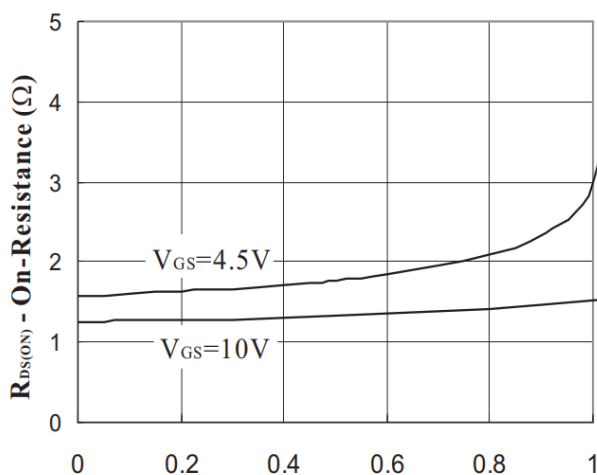


Fig 5: On Resistance vs Drain Current

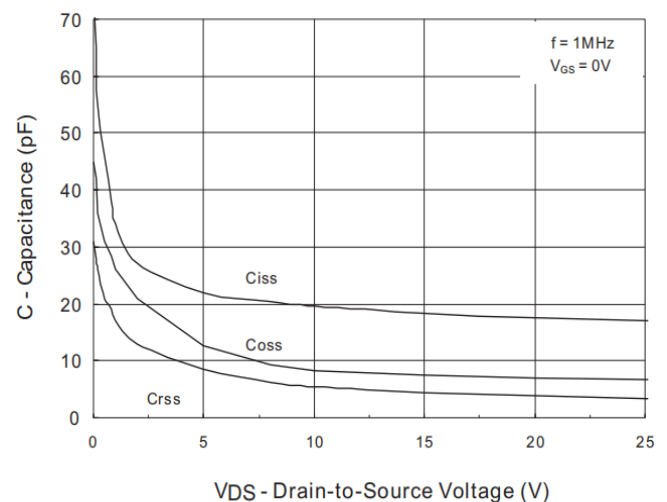
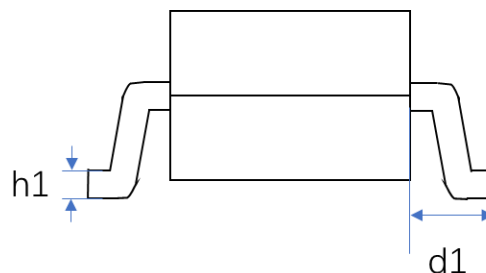
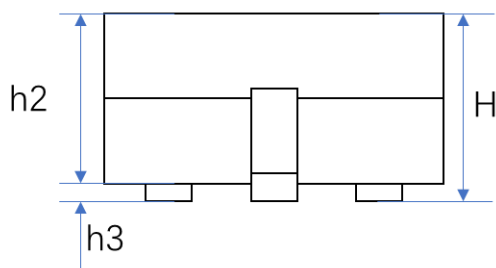


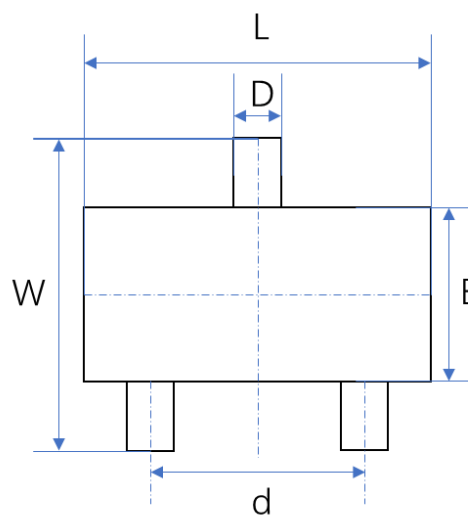
Fig 6: Capacitance vs Drain to Source Voltage

9 Product dimension

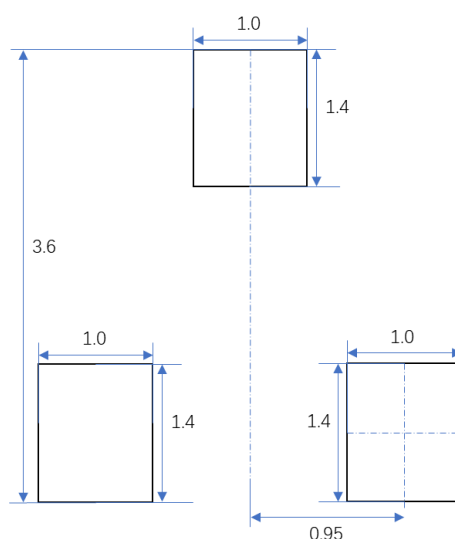
SOT-23



DIM	UNITS (mm)		
	MIN.	TYP.	MAX.
L	2.70	-	3.12
W	2.10	-	2.64
D	0.30	-	0.50
E	1.10	-	1.50
d	1.80	-	2.00
d1	-	0.55	-
H	0.90	-	1.15
h1	0.08	-	0.21
h2	0.86	-	1.05
h3	0.04	-	0.15



10 PCB Layout Footprints (Units: mm)



11 Ordering Information

Part Number	Packaging	Reel Size
SLMT37002K	3000/Tape & Reel	7 inch