

Dual N-Channel Trench MOSFET

1 Features

- $V_{DS} = 60V$, $I_D = 0.34A$
- $R_{DS(ON)} < 2.5\Omega$ @ $V_{GS}=10V$
- $R_{DS(ON)} < 3\Omega$ @ $V_{GS}=4.5V$
- Lead free product is acquired
- ESD protected
- Package SOT-563

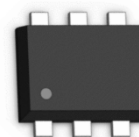
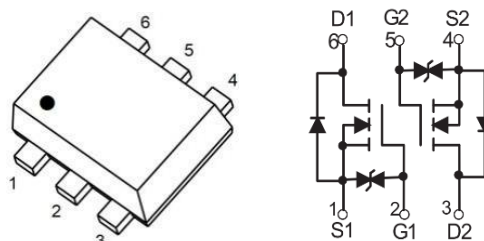
2 Applications

- Cellular Handsets and Accessories
- Personal Digital Assistants
- Portable Instrumentation
- Load switch

3 Description

The SLMT57002DK provide the best combination of fast switching, low on-resistance and cost-effectiveness. The MOSFET is the dual 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



SOT-563

5 Device Information

PART NUMBER	PACKAGE	BODY SIZE
SLMT57002DK	SOT-563	1.60 mm x 1.60 mm

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	0.34	A
Pulsed Drain Current	I_{DP}	1.36	A
Total power dissipation	P_D	0.15	W
Channel temperature	T_J	-55 to +150	°C
Range of storage temperature	T_{STG}	-55 to +150	°C
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	833	°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	1.0		2.5	V
Drain Cut Off Current	I _{DSS}	V _{DS} = 48V, 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 = 0.3A			2.5	Ω
		V _{GS} = 4.5V, I _D =0.2A			3	Ω
Dynamic Characteristics						
Total Gate Charge	Q _G	V _{DS} =30V, I _D =0.3A, V _{GS} =10V		0.65		nC
Gate-Source Charge	Q _{GS}			0.12		nC
Gate-Drain Charge	Q _{GD}			0.21		nC
Input Capacitance	C _{ISS}	V _{DS} = 30V, V _{GS} = 0V, f = 1KHz		35		pF
Reverse Transfer Capacitance	C _{RSS}			8		pF
Output Capacitance	C _{OSS}			27		pF
Turn-On Delay Time	t _{d(on)}	V _{GS} =10V, V _{DS} =50V, I _D =0.3A, R _G =3.3Ω		4.5		ns
Turn-Off Delay Time	t _{d(off)}			15		ns
Rise Time	t _r			3.1		ns
Fall Time	t _f			3.3		ns
Drain-Source Body Diode Characteristics						
Source-Drain Diode Forward Voltage	V _{SD}	I _S = 0.3A, V _{GS} = 0V		0.8	1.2	V

8 Typical Characteristics

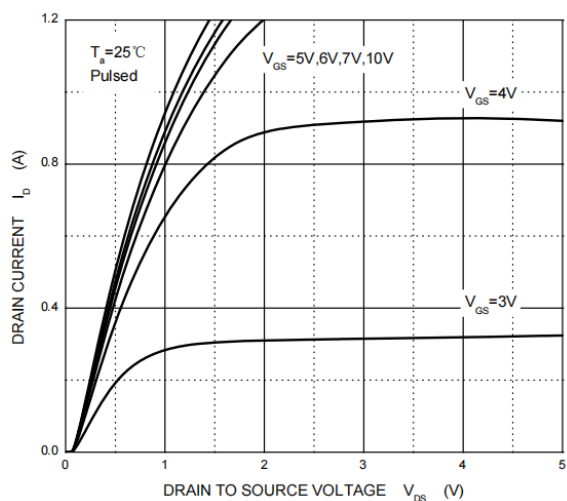


Fig 1. Output Characteristics

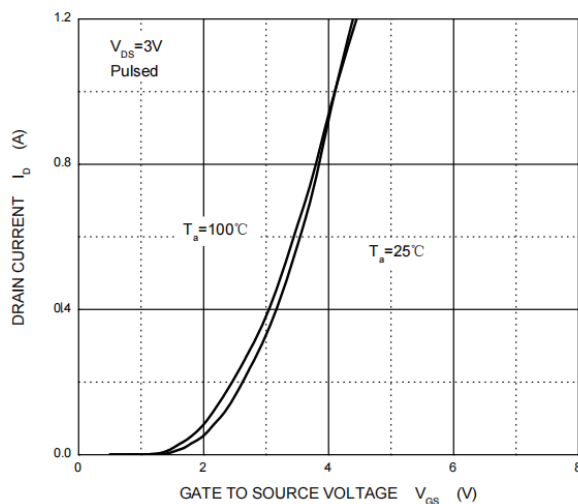


Fig 2. Transfer Characteristics

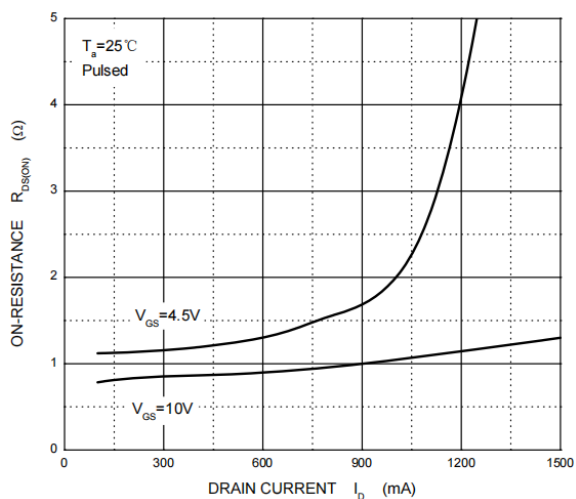


Fig 3. $R_{DS(on)}$ vs. Drain Current Characteristics

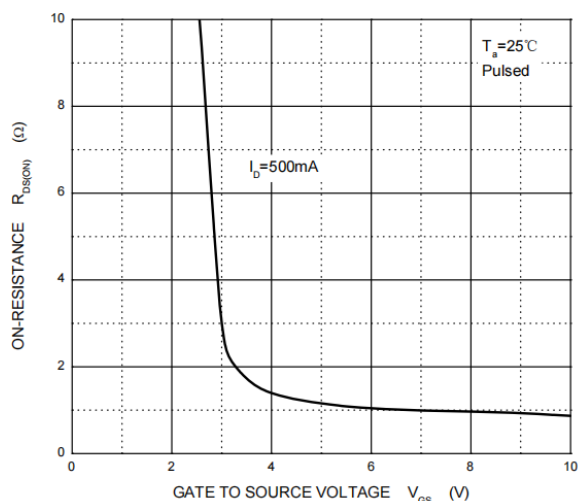


Fig 4. Gate-Source on Resistance

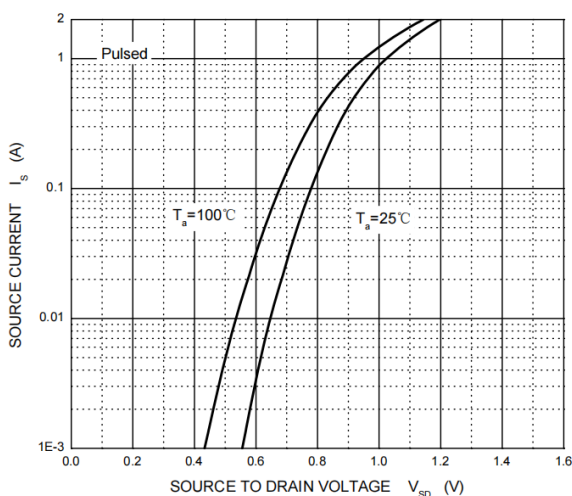
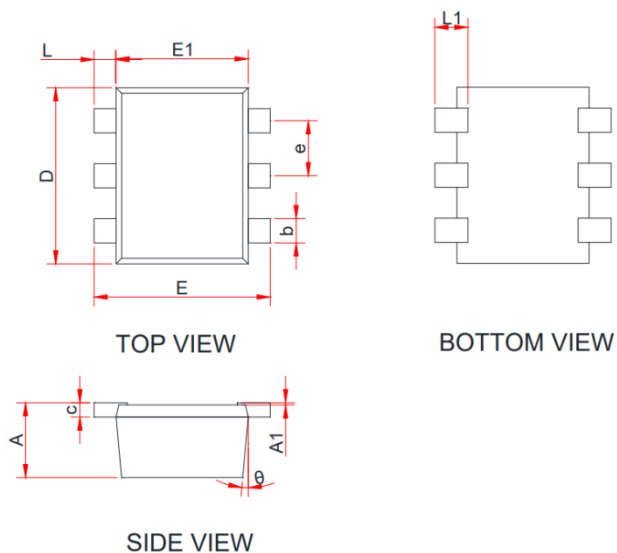


Fig 5. Source-Drain Diode Forward

9 Product dimension

SOT-563



DIM	UNITS (mm)		
	MIN.	TYP.	MAX.
A	0.45	-	0.60
A1	0.00	-	0.05
e	-	0.50	-
c	0.09	-	0.18
D	1.50	1.60	1.70
E	1.50	1.60	1.70
E1	1.10	-	1.45
b	0.17	0.22	0.27
L	0.15REF		
L1	0.25REF		
θ	-	7°	-

10 Ordering Information

Part Number	Packaging	Reel Size
SLMT57002DK	3000/Tape & Reel	7 inch