N-Channel Enhancement Mode MOSFET

1 Features

- V_{DS} = 60V, I_D =3A
- $R_{DS(ON)}$ ＜105mΩ @ V_{GS} =10V
- $R_{DS(ON)}$ ＜125mΩ @ V_{GS}= 4.5V
- High Power and current handing capability
- Lead free product is acquired
- Package SOT-23

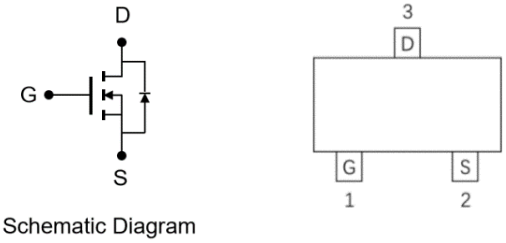
2 Applications

- PWM applications
- Load switch
- Power management

3 Description

The SLMT360V3CN provide the best combination of fast switching, low on-resistance and cost-effectiveness. The MOSFET uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 1.3V. This device is suitable for use as a load switch or in PWM applications.

4 Pin Configuration and Top View



Schematic Diagram

SOT-23

5 Device Information

PART NUMBER	PACKAGE	BODY SIZE (NOM)
SLMT360V3CN	SOT-23	2.90 mm x 2.40mm

6 Absolute maximum Ratings @25℃

RATING	SYMBOL	VALUE	UNITS
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	3	A
Pulsed Drain Current	I_{DP}	12	A
Total power dissipation	P_D	1.6	W
Channel temperature	T_J	150	℃
Range of storage temperature	T_{STG}	-55 to +150	℃
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	80	℃/W

7 Electrical characteristics (@25℃ 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	0.5		2.0	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			±1	μA
Drain-Source ON Resistance	$R_{DS(ON)}$	V_{GS} = 10V, I_D= 3A		78	105	mΩ
		V_{GS} = 4.5V, I_D= 2A		90	125	mΩ
Dynamic Characteristics						
Total Gate Charge	Q_G	V_{DS} =48V,		6.5		nC
Gate-Source Charge	Q_{GS}	I_D =1A,		1		nC
Gate-Drain Charge	Q_{GD}	V_{GS} = 10V		1.4		nC
Input Capacitance	C_{ISS}	V_{DS} = 30V,		253		pF
Reverse Transfer Capacitance	C_{RSS}	V_{GS} = 0V,		21		pF
Output Capacitance	C_{OSS}	f = 1.0MHz		36		pF
Turn-On Delay Time	$t_{d(on)}$			6		ns
Turn-Off Delay Time	$t_{d(off)}$	V_{GS} =10V, V_{DS} =30V,		15		ns
Rise Time	t_r	I_D=1A, R_G =3Ω		15		ns
Fall Time	t_f			10		ns
Drain-Source Body Diode Characteristics						
Source-Drain Diode Forward Voltage	V_{SD}	I_S = 3A, V_{GS} = 0V		0.7	1.2	V

8 Typical Characteristics

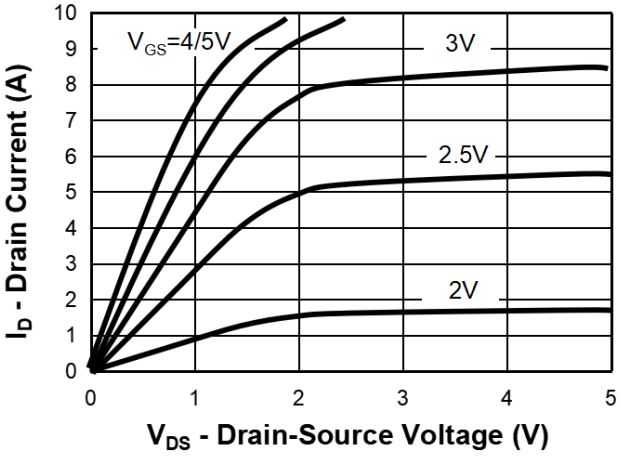


Fig 1. Output Characteristics

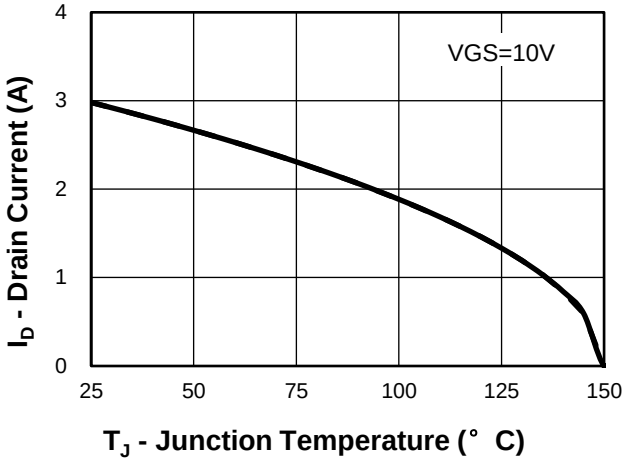


Fig 2. Drain Current

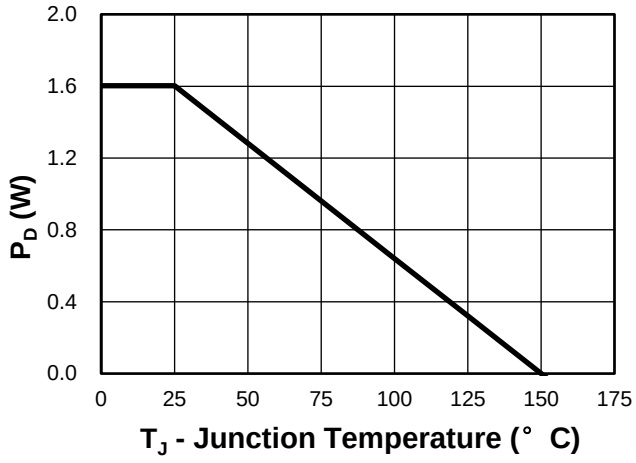


Fig 3. Power Dissipation

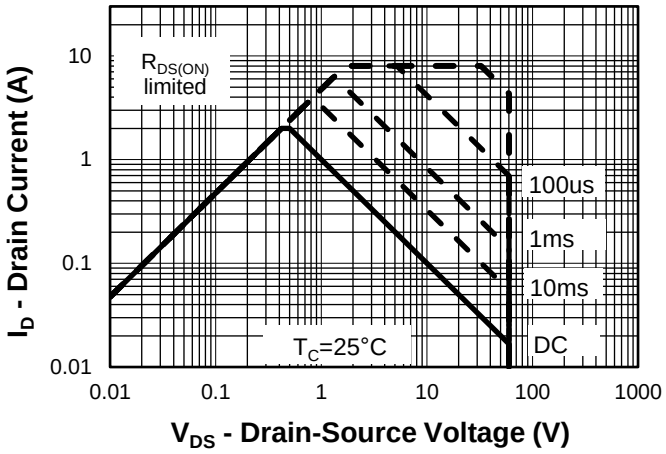


Fig 4. Safe Operation Area(SOA)

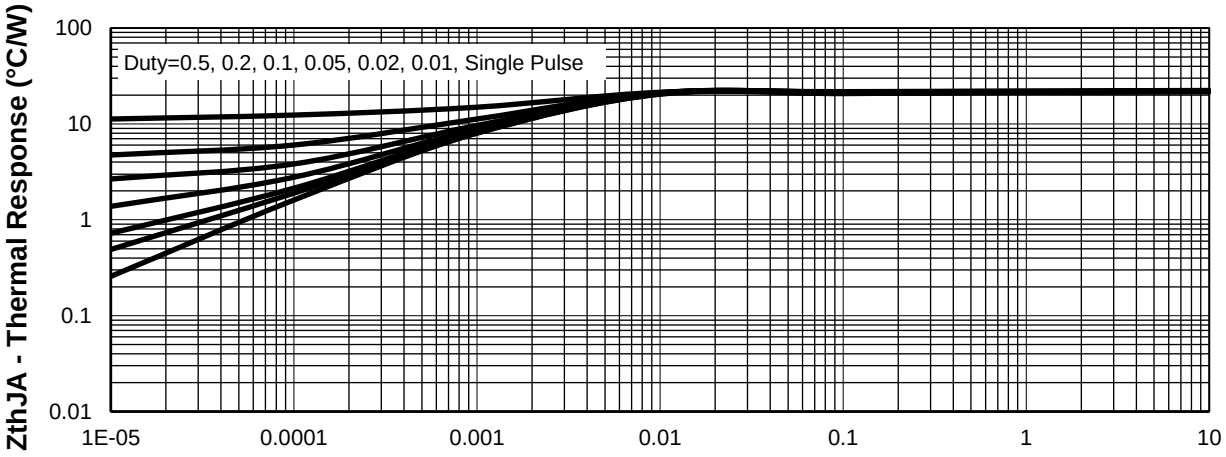


Fig 5. Thermal Transient Impedance

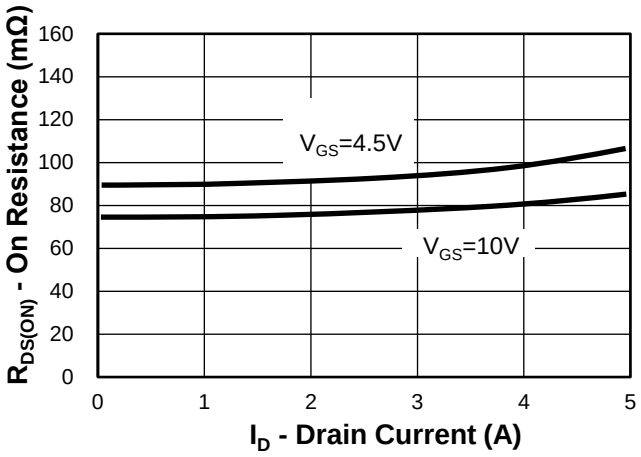


Fig 6. Rdson vs. Drain Current Characteristics

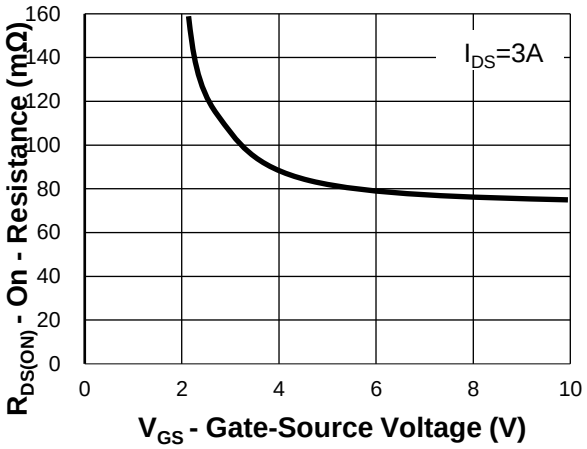


Fig 7. Gate-Source on Resistance

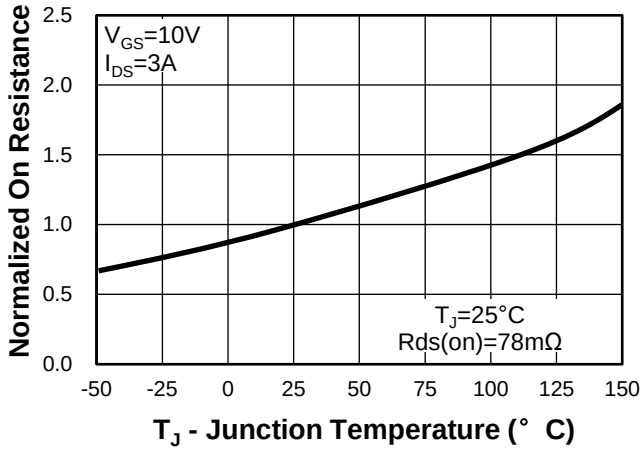


Fig 8. Rdson vs. Junction Tem Characteristics

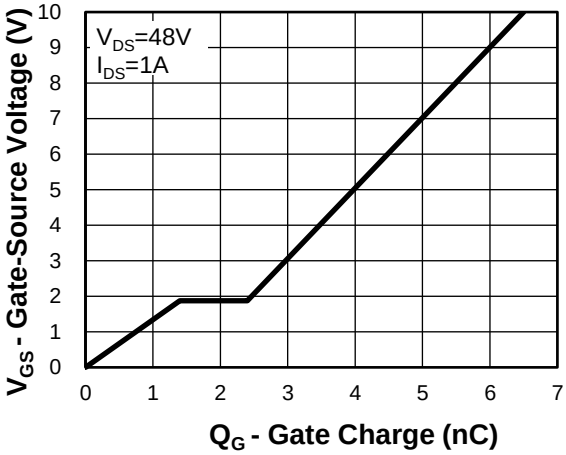


Fig 9. Gate Charge Characteristics

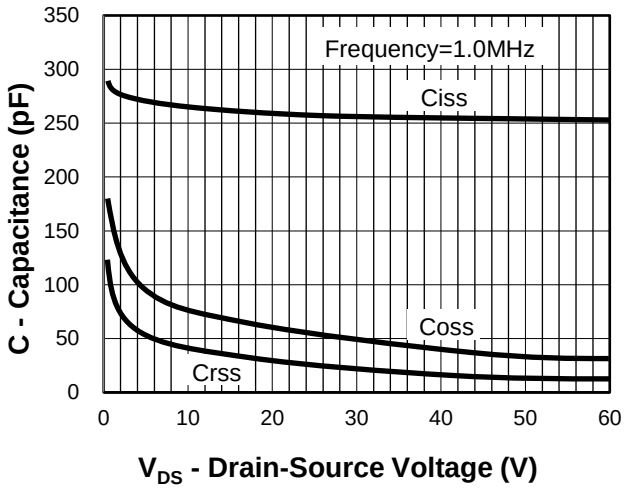


Fig 10. Capacitance Characteristics

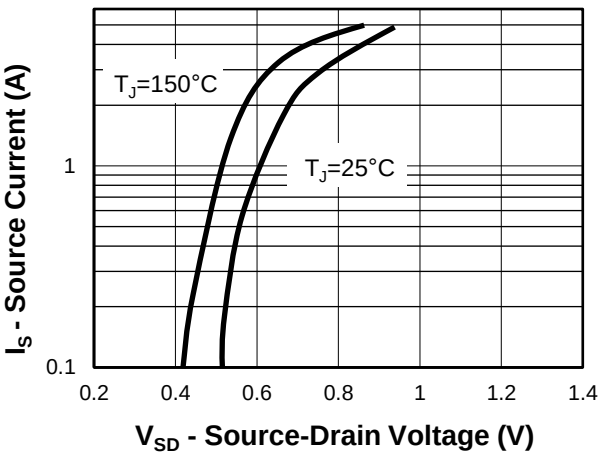
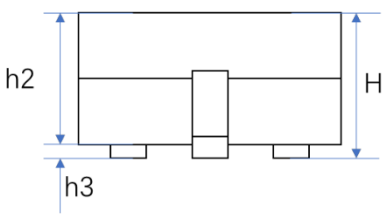
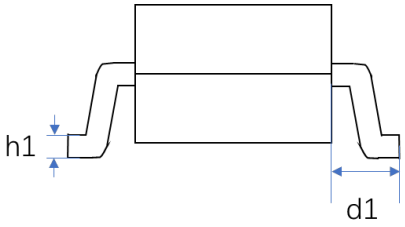


Fig 11. Source-Drain Diode Forward

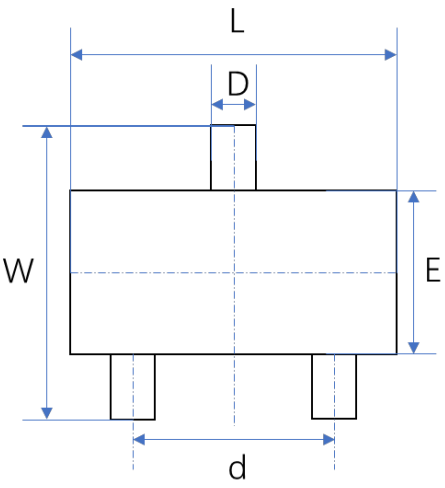
9 Product dimension

SOT-23

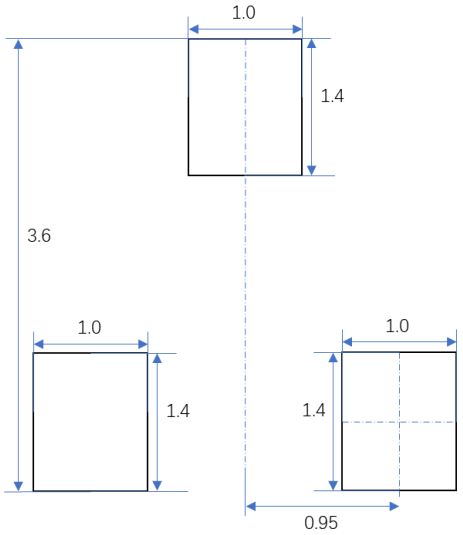




DIM	UNITS (mm)		
	MIN.	TYP.	MAX.
L	2.70	-	3.12
W	2.10	-	2.64
D	0.30	-	0.50
E	1.10	-	1.50
d	1.80	-	2.00
d1	-	0.55	-
H	0.90	-	1.15
h1	0.08	-	0.21
h2	0.86	-	1.05
h3	0.04	-	0.15



10 PCB Layout Footprints (Units: mm)



11 Ordering Information

Part Number	Packaging	Reel Size
SLMT360V3CN	3000/Tape & Reel	7 inch