

P-Channel Enhancement Mode MOSFET

1 Features

- $V_{DS} = -20V$, $I_D = -1.3A$
- $R_{DS(ON)} = 222m\Omega$ @ $V_{GS} = -4.5V$
- $R_{DS(ON)} = 328m\Omega$ @ $V_{GS} = -2.5V$
- High Power and current handling capability
- Package SOT-23

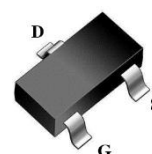
2 Applications

- PWM applications
- Load switch
- Power management

3 Description

The SLMT320V1CPH 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 $-0.65V$. This device is suitable for use as a load switch or in high power applications.

4 Pin Configuration and Top View



SOT-23

5 Device Information

PART NUMBER	PACKAGE	BODY SIZE (NOM)
SLMT320V1CPH	SOT-23	2.90 mm x 2.40 mm

6 Absolute maximum Ratings @25°C

RATING	SYMBOL	VALUE	UNITS
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current	I_D	-1.3	A
Pulsed Drain Current	I_{DP}	-5.2	A
Total power dissipation	P_D	0.5	W
Channel temperature	T_J	150	°C
Range of storage temperature	T_{STG}	-55 to +150	°C
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	340	°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	-20			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-0.4	-0.65	-0.9	V
Drain Cut Off Current	I _{DSS}	V _{DS} = -20V, V _{GS} = 0V			-1	μA
Gate Leakage Current	I _{GSS}	V _{GS} = ±12V, V _{DS} = 0V			±100	nA
Drain-Source ON Resistance	R _{DS(ON)}	V _{GS} = -4.5V, I _D = -0.5A		222	267	mΩ
		V _{GS} = -2.5V, I _D = -0.3A		328	394	mΩ
Dynamic Characteristics						
Total Gate Charge	Q _G	V _{DS} = -20V, I _D = -0.3A, V _{GS} = 0 to -4.5V		2.5		nC
Gate-Source Charge	Q _{GS}			0.6		nC
Gate-Drain Charge	Q _{GD}			0.4		nC
Input Capacitance	C _{ISS}	V _{DS} = -10V, V _{GS} = 0V, f = 1.0MHz		74		pF
Reverse Transfer Capacitance	C _{RSS}			12		pF
Output Capacitance	C _{OSS}			17		pF
Turn-On Delay Time	t _{d(on)}	V _{GS} = -4.5V, V _{DS} = -10V I _D = -0.3A, R _G =3Ω		11		ns
Turn-Off Delay Time	t _{d(off)}			18		ns
Rise Time	t _r			24		ns
Fall Time	t _f			8		ns
Drain-Source Body Diode Characteristics						
Source-Drain Diode Forward Voltage	V _{SD}	I _S = -0.3A, V _{GS} = 0V			-1.2	V

8 Test Circuit

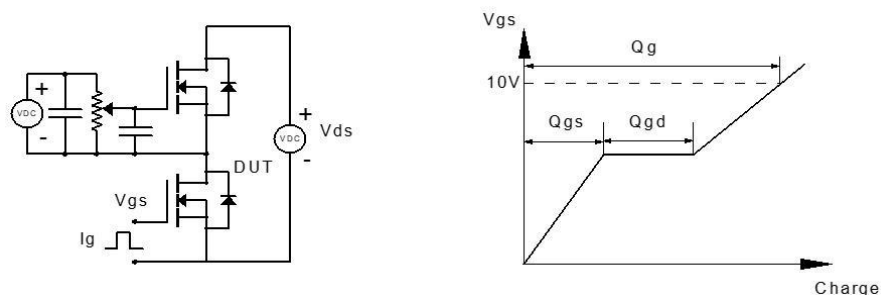


Fig 1. Gate Charge Test Circuit & Waveform

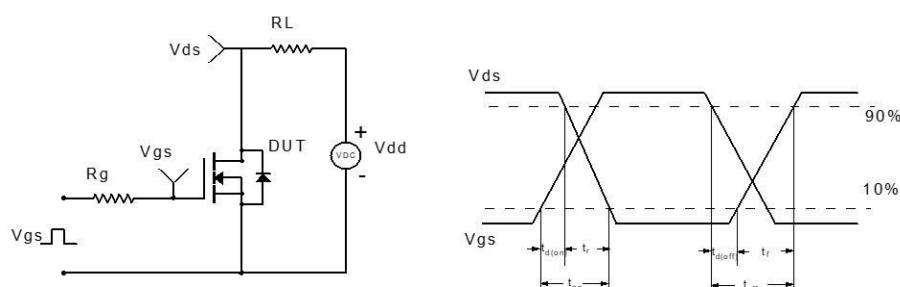


Fig 2. Resistive Switching Test Circuit & Waveform

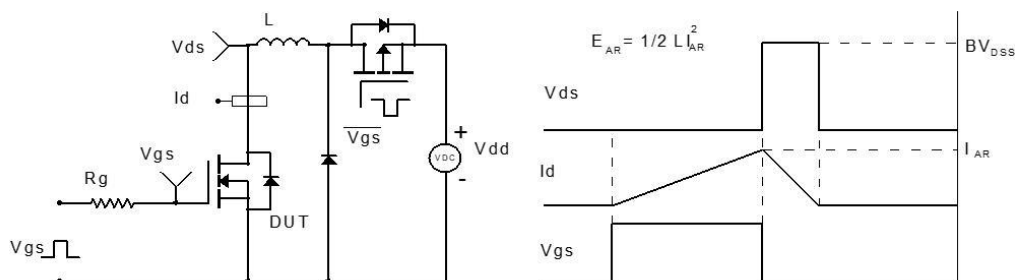


Fig 3. Unclamped Inductive Switching Test Circuit & Waveform

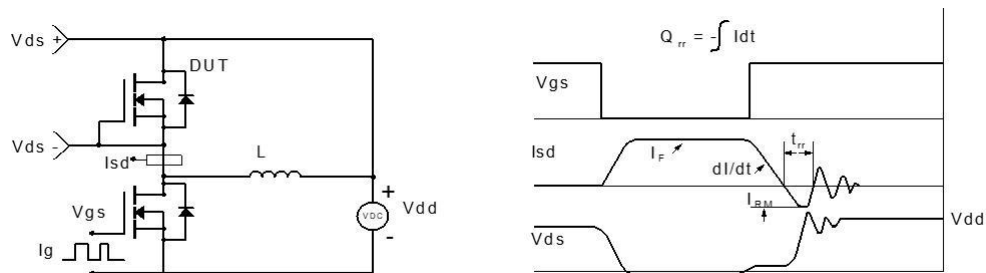
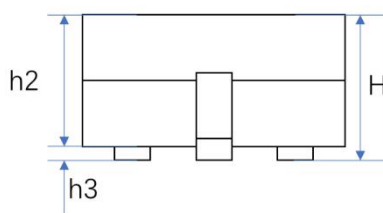


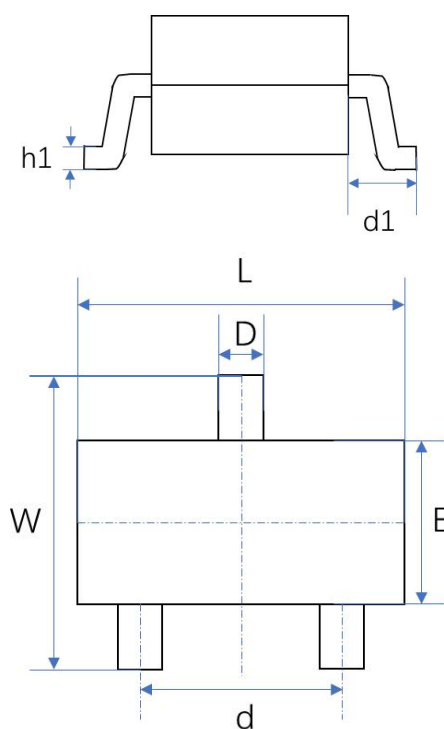
Fig 4. Diode Recovery Test Circuit & Waveform

9 Product dimension

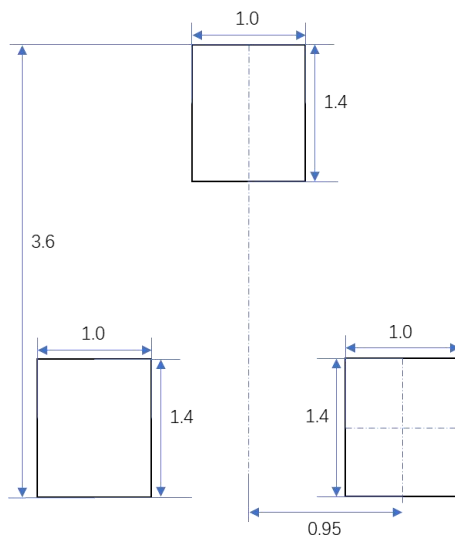
SOT-23



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
SLMT320V1CPH	3000/Tape & Reel	7 inch