

• General Description

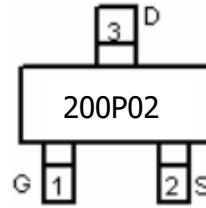
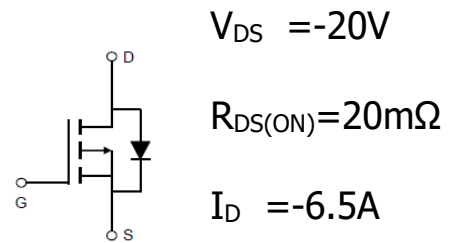
The ZM200P02T combines advanced trench MOSFET technology with a low resistance package to provide extremely low $R_{DS(ON)}$.

• Features

- Advance high cell density Trench technology
- Low $R_{DS(ON)}$ to minimize conductive loss
- Low Gate Charge for fast switching
- Low Thermal resistance

• Application

- Load Switches
- DC/DC
- BLDC Motor driver

• Product Summary


SOT23-3

• Ordering Information:

Part NO.	ZM200P02T
Marking	ZM200P02
Packing Information	REEL TAPE
Basic ordering unit (pcs)	3000

• Absolute Maximum Ratings ($T_c = 25^\circ C$)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 8	V
Continuous Drain Current	$I_{D@TC=25^\circ C}$	-6.5	A
	$I_{D@TC=75^\circ C}$	-4.9	A
	$I_{D@TC=100^\circ C}$	-4.1	A
Pulsed Drain Current ^①	I_{DM}	-15	A
Total Power Dissipation ^②	P_D	1.5	W
Total Power Dissipation($T_A=25^\circ C$)	$P_D@T_A=25^\circ C$	0.7	W
Operating Junction Temperature	T_J	-55 to 150	$^\circ C$
Storage Temperature	T_{STG}	-55 to 150	$^\circ C$
Single Pulse Avalanche Energy	E_{AS}	45	mJ

•Thermal resistance

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal resistance, junction - case ^②	R _{thJC}	-	-	80	° C/W
Thermal resistance, junction - ambient	R _{thJA}	-	-	180	° C/W
Soldering temperature, wavesoldering for 10s	T _{sold}	-	-	265	° C

•Electronic Characteristics

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V, I _D = -250uA	-20			V
Gate Threshold Voltage	V _{GS(TH)}	V _{GS} = V _{DS} , I _D = -250uA	-0.3		-1.2	V
Drain-Source Leakage Current	I _{DSS}	V _{DS} = -20V, V _{GS} = 0V			1.0	uA
Gate- Source Leakage Current	I _{GSS}	V _{GS} = ±8V, V _{DS} = 0V			±100	nA
Static Drain-source On Resistance	R _{DS(ON)}	V _{GS} = -4.5V, I _D = -3A		20	26	mΩ
		V _{GS} = -2.5V, I _D = -2A		25	32	mΩ
Forward Transconductance	g _{FS}	V _{DS} = -10V, I _D = -2A		13		s
Source-drain voltage	V _{SD}	I _S = -3A			1.28	V

•Electronic Characteristics

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Input capacitance	C _{iss}	f = 1MHz	-	1350	-	pF
Output capacitance	C _{oss}		-	194	-	
Reverse transfer capacitance	C _{rss}		-	148	-	

•Gate Charge characteristics(T_a = 25°C)

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Total gate charge	Q _g	V _{DD} = -15V	-	14	-	nC
Gate - Source charge	Q _{gs}	I _D = -4A	-	6	-	
Gate - Drain charge	Q _{gd}	V _{GS} = -4.5V	-	8	-	

Note: ① Pulse Test : Pulse width ≤ 300μs, Duty cycle ≤ 2% ;

② Device mounted on FR-4 substrate PC board, 2oz copper, with thermal bias to bottom layer 1inch square copper plate;

Fig.1 Gate-Charge Characteristics

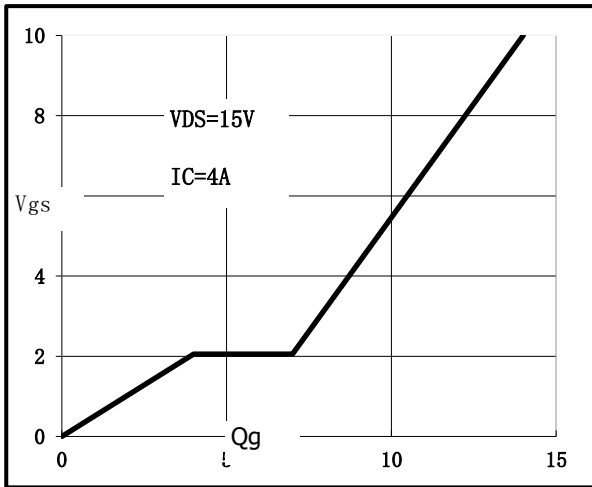


Fig.2 Capacitance Characteristics

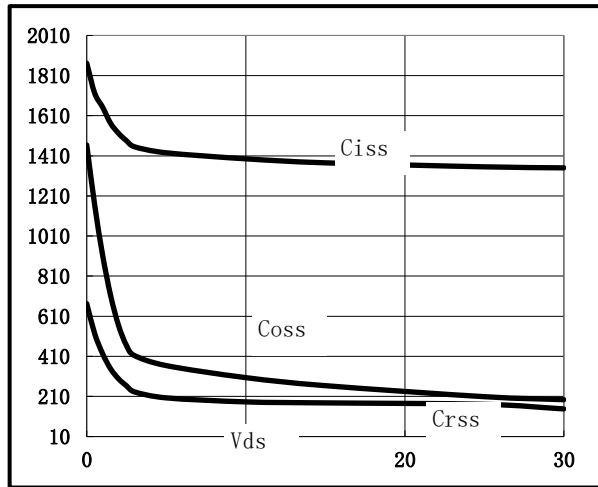


Fig.3 Power Dissipation Derating Curve

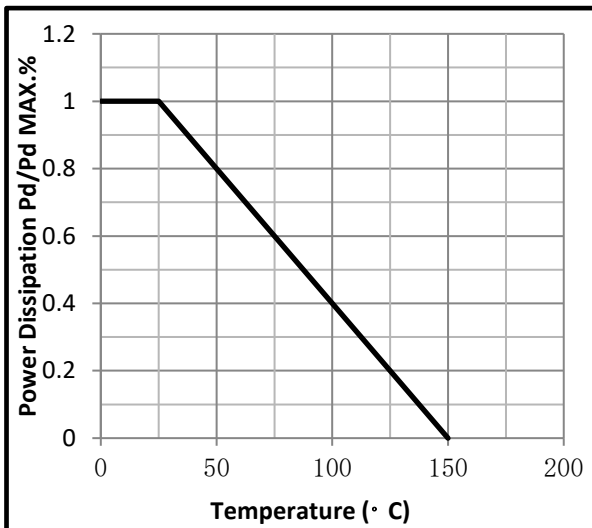


Fig.4 Typical output Characteristics

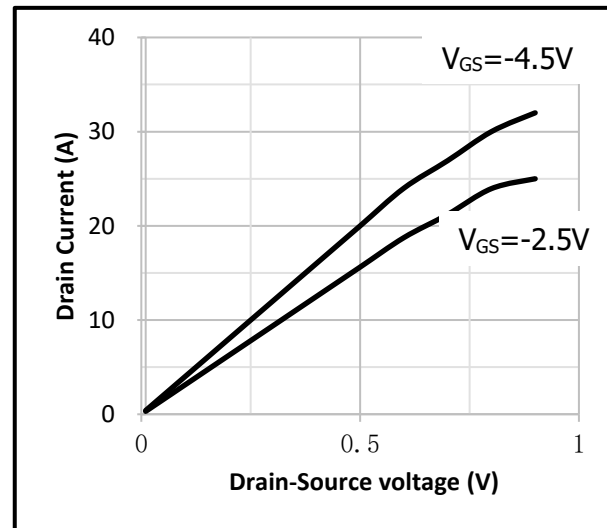


Fig.5 Threshold Voltage V.S Junction Temperature

Fig.6 Resistance V.S Drain Current

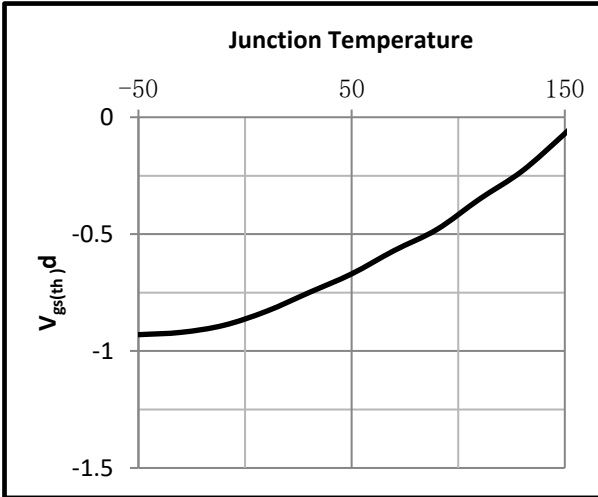


Fig.7 On-Resistance VS Gate Source Voltage

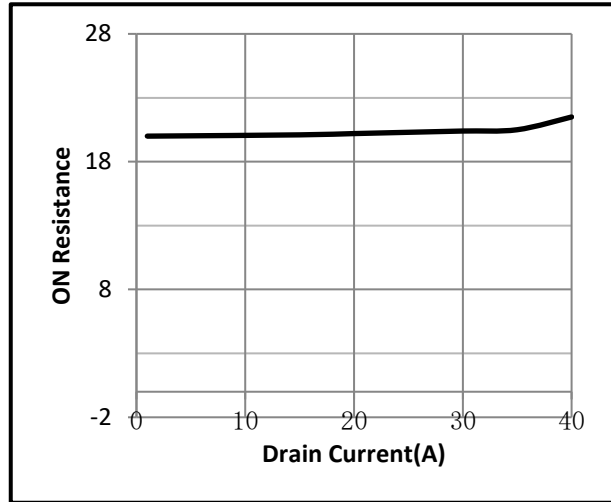


Fig.8 On-Resistance V.S Junction Temperature

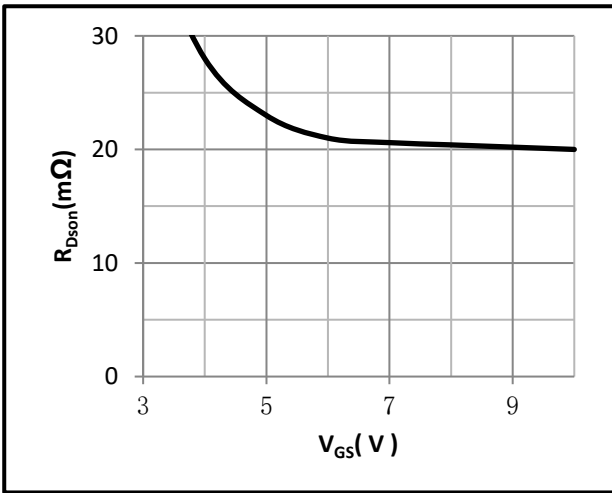


Fig.9 Switching Time Measurement Circuit

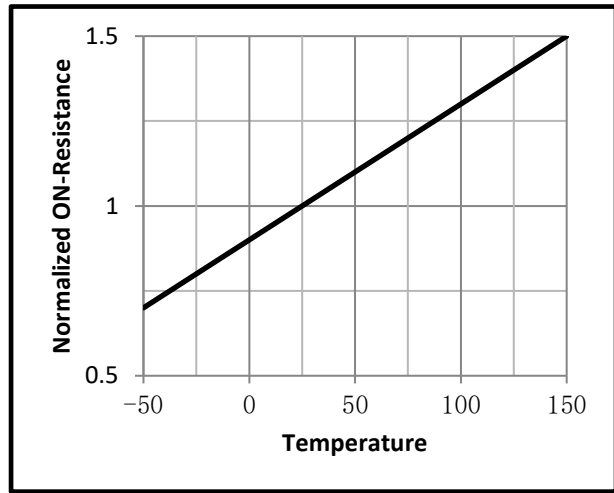


Fig.10 Gate Charge Waveform

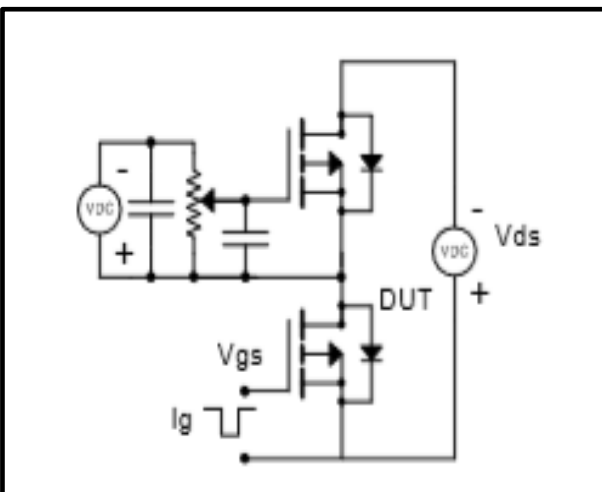


Fig.11 Switching Time Measurement Circuit

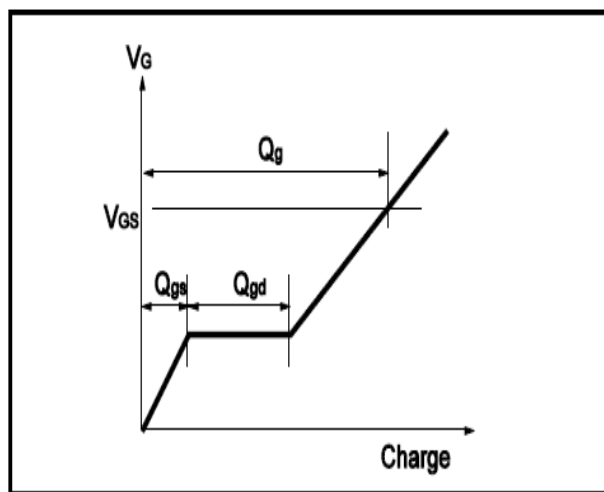
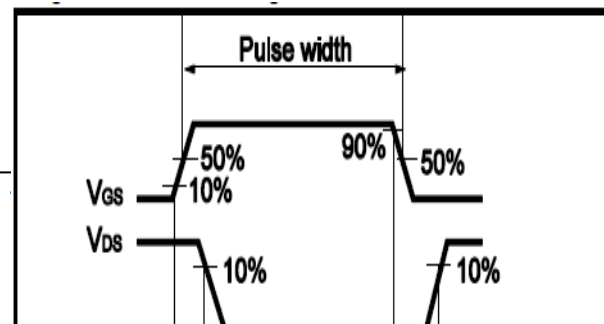
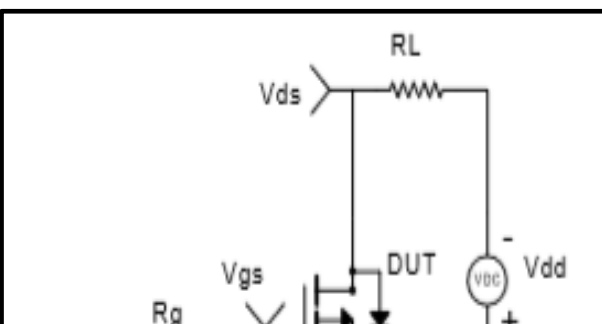
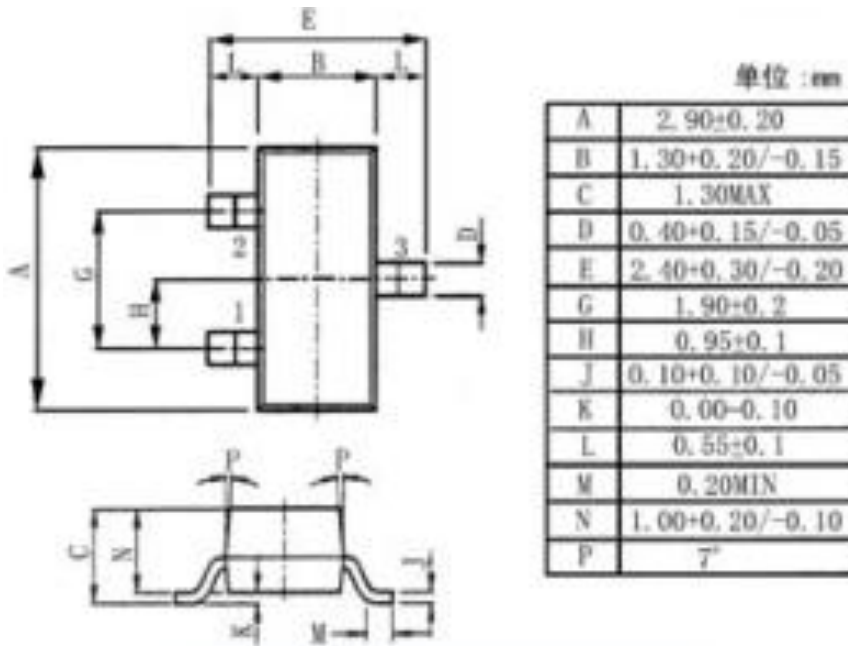


Fig.12 Gate Charge Waveform



●Dimensions(SOT23)

Unit: mm



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