

• General Description

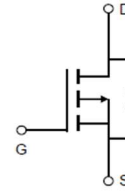
The ZM350P10S combines advanced trench MOSFET technology with a low resistance package to provide extremely low $R_{DS(ON)}$.

• 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

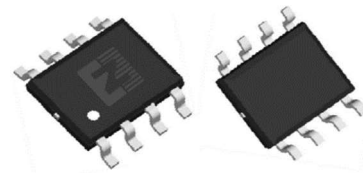
- MB/VGA Vcore
- SMPS 2nd Synchronous Rectifier
- POL application
- BLDC Motor driver

• Product Summary


$V_{DS} = -100V$

$R_{DS(ON)} = 40m\Omega$

$I_D = -8A$



SOP-8

• Ordering Information:

Part NO.	ZM350P10S
Marking	ZM350P10
Packing Information	REEL TAPE
Basic ordering unit (pcs)	4000

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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-100	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	$I_{D@T_C=25^\circ C}$	-8	A
	$I_{D@T_C=75^\circ C}$	-6	A
	$I_{D@T_C=100^\circ C}$	-5	A
Pulsed Drain Current ^①	I_{DM}	-24	A
Total Power Dissipation	$P_D@T_C=25^\circ C$	3.6	W
Total Power Dissipation	$P_D@T_A=25^\circ C$	0.73	W
Operating Junction Temperature	T_J	-55 to 150	$^\circ C$
Storage Temperature	T_{STG}	-55 to 150	$^\circ C$
Single Pulse Avalanche Energy@L=0.1mH	E_{AS}	180	mJ

**•Thermal resistance**

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal resistance, junction - case	R_{thJC}	-	-	34	$^{\circ}C/W$
Thermal resistance, junction - ambient	R_{thJA}	-	-	170	$^{\circ}C/W$
Soldering temperature, wavesoldering for 10s	T_{sold}	-	-	265	$^{\circ}C$

•Electronic Characteristics

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS} = 0V, I_D = -250\mu A$	-100			V
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{GS} = V_{DS}, I_D = -250\mu A$	-1.2		-2.5	V
Drain-Source Leakage Current	I_{DSS}	$V_{DS} = -100V, V_{GS} = 0V$			-1.0	μA
Gate- Source Leakage Current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100	nA
Static Drain-source On Resistance	$R_{DS(ON)}$	$V_{GS} = -10V, I_D = -15A$		40	50	m Ω
		$V_{GS} = -4.5V, I_D = -8A$		42	55	m Ω
Forward Transconductance	g_{FS}	$V_{DS} = -10V, I_D = -10A$		20		S
Source-drain voltage	VSD	$I_S = -15A$			1.28	V

•Electronic Characteristics

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Input capacitance	C_{iss}	$V_{DS} = -25V$ $f = 1MHz$	-	4500	-	pF
Output capacitance	C_{oss}		-	398	-	
Reverse transfer capacitance	C_{rss}		-	157	-	

•Gate Charge characteristics($T_a = 25^{\circ}C$)

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Total gate charge	Q_g	$V_{DD} = -15V$	-	124	-	nC
Gate - Source charge	Q_{gs}	$I_D = -8A$	-	20	-	
Gate - Drain charge	Q_{gd}	$V_{GS} = -10V$	-	29	-	

Note: ① Pulse Test : Pulse width $\leq 300\mu s$, Duty cycle $\leq 2\%$;

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

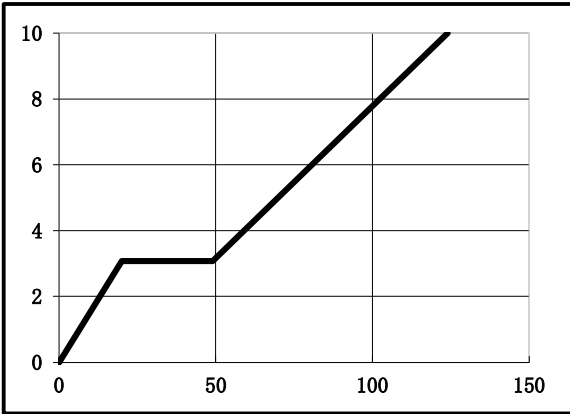


Fig.2 Capacitance Characteristics

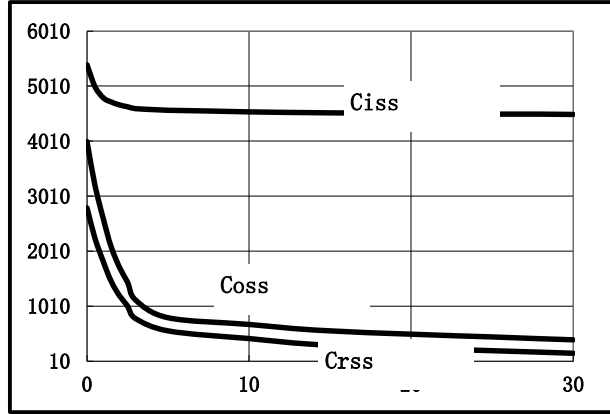


Fig.3 Power Dissipation

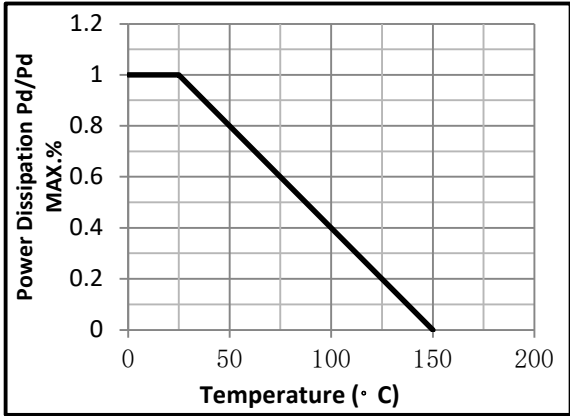


Fig.4 Typical output Characteristics

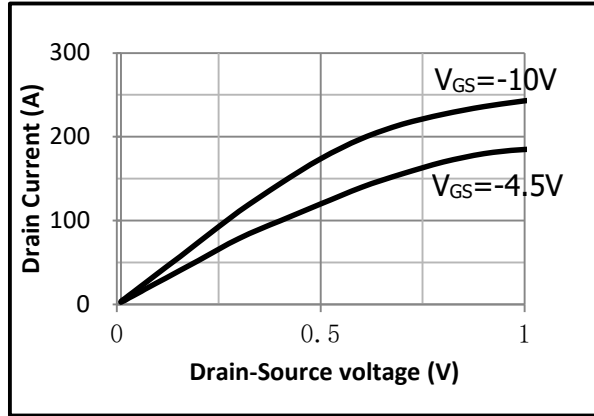


Fig.5 Threshold Voltage V.S Junction Temperature

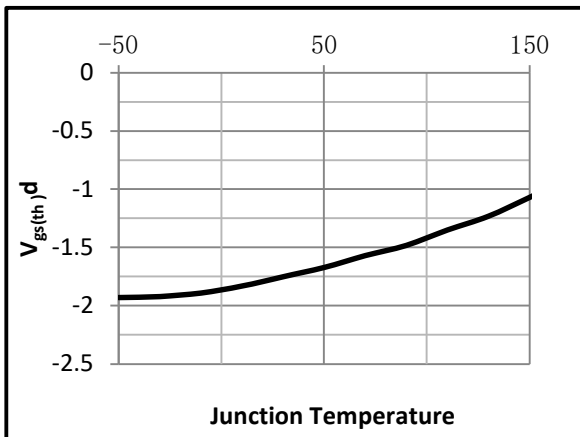


Fig.6 Resistance V.S Drain Current

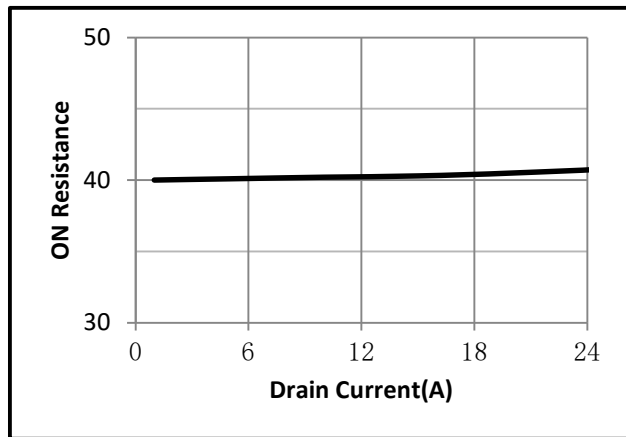


Fig.7 On-Resistance VS Gate Source Voltage

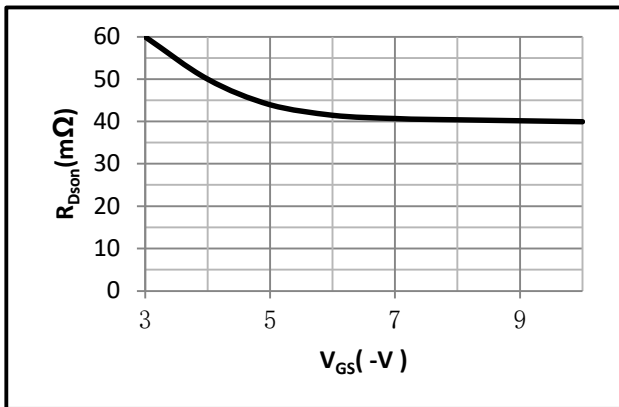


Fig.8 On-Resistance V.S Junction Temperature

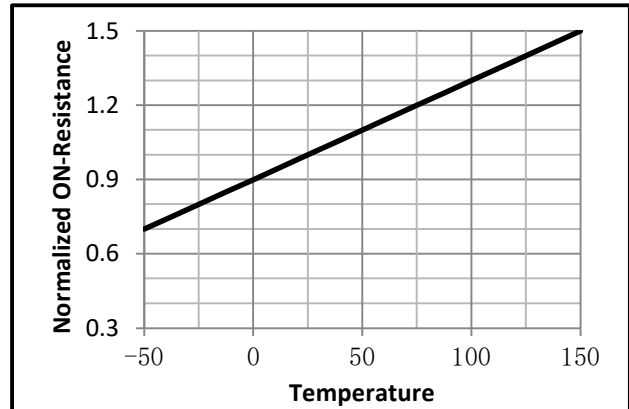


Fig.9 Gate Charge Measurement Circuit

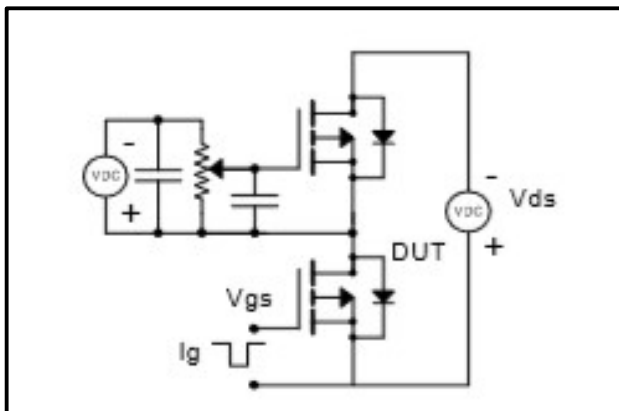


Fig.10 Gate Charge Waveform

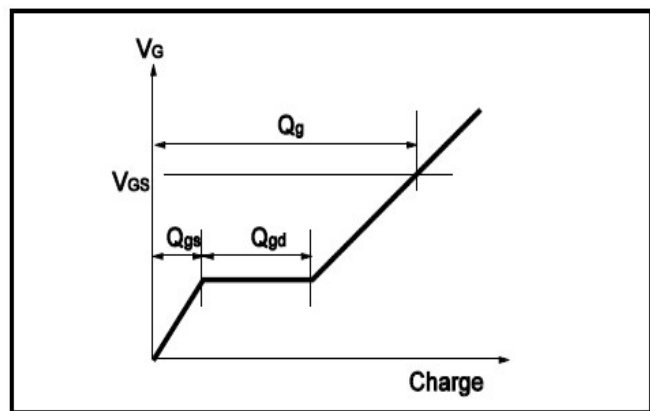


Fig.11 Switching Time Measurement Circuit

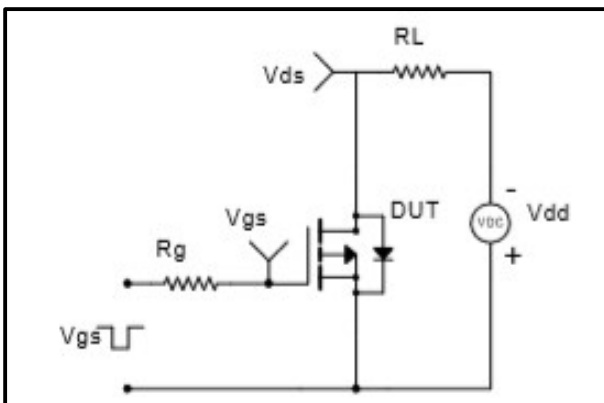
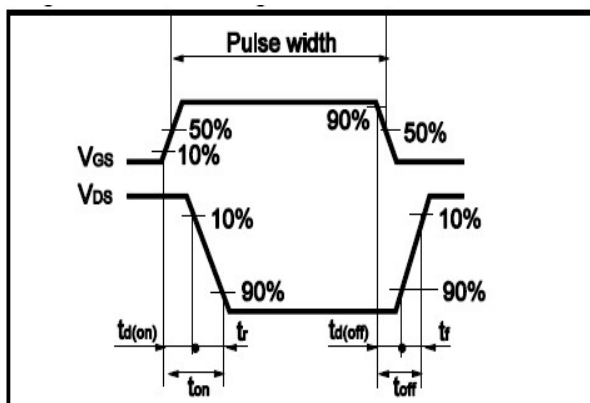


Fig.12 Switching Time Waveform





•Dimensions(SOP8)

Unit: mm

SYMBOL	min	TYP	max	SYMBOL	min		max
A	4.80		5.25	C	1.30		1.75
A1	0.37		0.49	C1	0.55		0.75
A2		1.27		C2	0.55		0.65
A3		0.41		C3	0.05		0.20
B	5.80		6.20	C4	0.10	0.20	0.23
B1	3.80		4.10	D		1.05	
B2		5.00		D1	0.40		0.62

