

### General Description

The ZM390P04S combines advanced trench MOSFET technology with a low resistance package to provide extremely low  $R_{DS(ON)}$ . This device is ideal for load switch and battery protection applications.

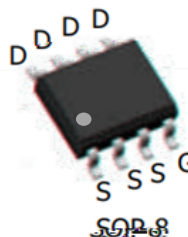
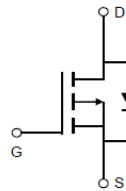
### Features

Advance high cell density Trench technology  
 $R_{DS(ON)}$  to minimize conductive loss

### Application

nd Synchronous Rectifier

### Product Summary



### Ordering Information:

Part NO.	ZM390P04S
Marking	ZM390P04
Packing Information	REEL TAPE
Basic ordering unit (pcs)	4000

### Absolute Maximum Ratings $T_C = 25$

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	-40	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current	$I_D @ T_C = 25$	-6	A
	$I_D @ T_C = 75$	-4.6	A
	$I_D @ T_C = 100$	-3.8	A
Pulsed Drain Current	$I_{DM}$	-36	A
Total Power Dissipation	$P_D @ T_C = 25$	3.4	W
Total Power Dissipation	$P_D @ T_A = 25$	0.69	W
Operating Junction Temperature	$T_J$	-55 to 150	
Storage Temperature	$T_{STG}$	-55 to 150	
Single Pulse Avalanche Energy	$E_{AS}$	30	mJ

**Thermal resistance**

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal resistance, junction - case	$R_{thJC}$	-	-	24	° C/W
Thermal resistance, junction - ambient	$R_{thJA}$	-	-	75	° C/W

Fig.1 Power Dissipation Derating Curve

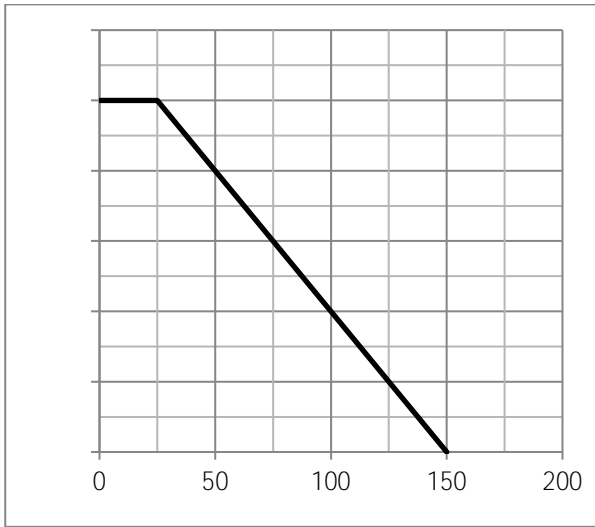


Fig.2 Typical output Characteristics

Fig.3 Threshold Voltage V.S Junction Temperature

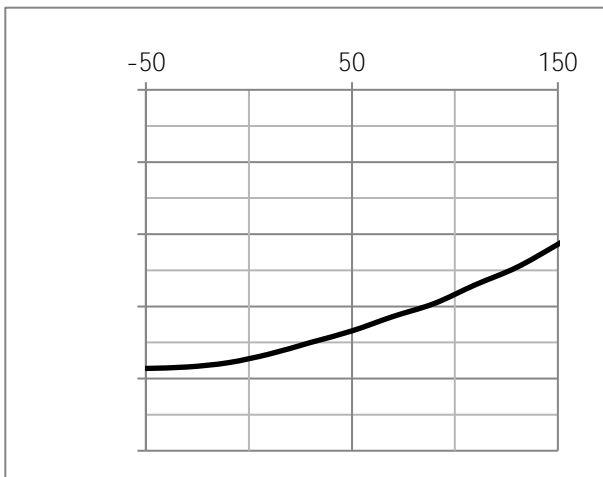


Fig.4 Resistance V.S Drain Current

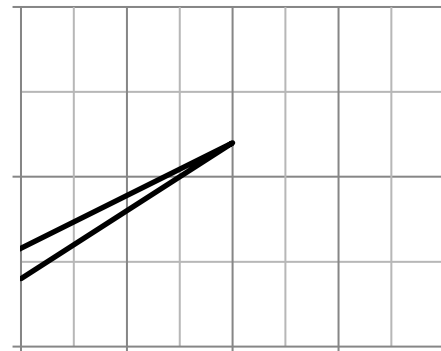
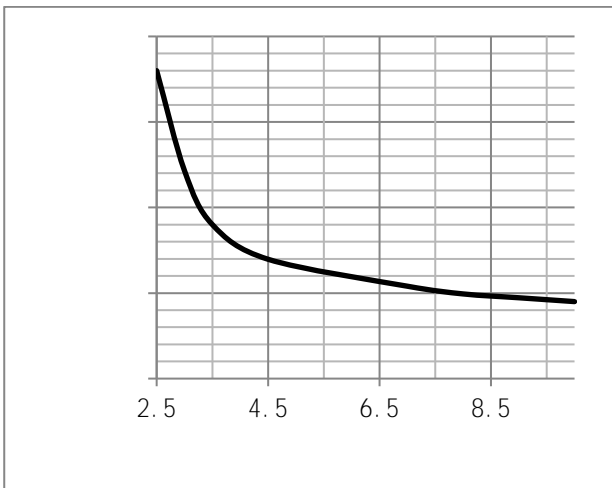


Fig.7 SOA Maximum Safe Operating Area

Fig.8 ID-Junction Temperature

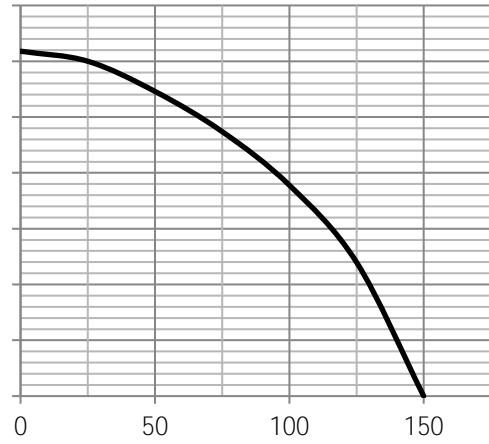


Fig.10

Fig.11

Fig.12 Switching Time Measurement Circuit

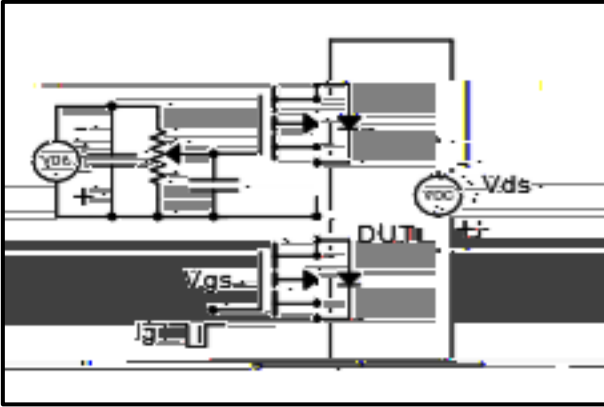


Fig.13 Gate Charge Waveform

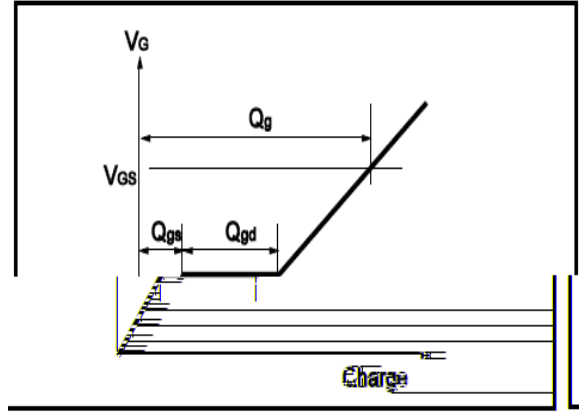


Fig.14 Switching Time Measurement Circuit

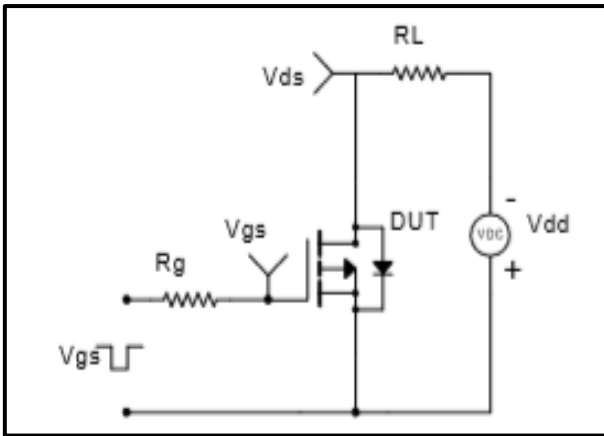


Fig.15 Gate Charge Waveform

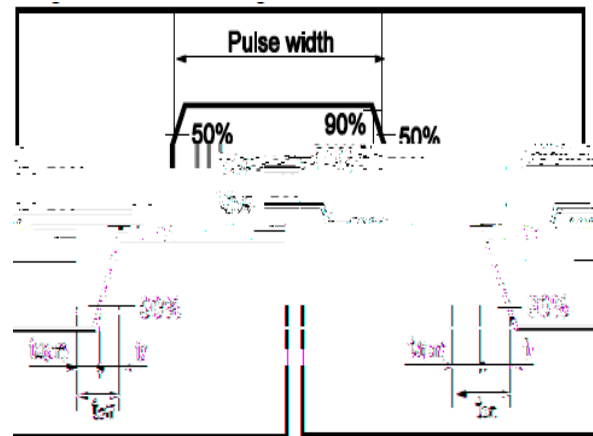


Fig.16 Avalanche Measurement Circuit

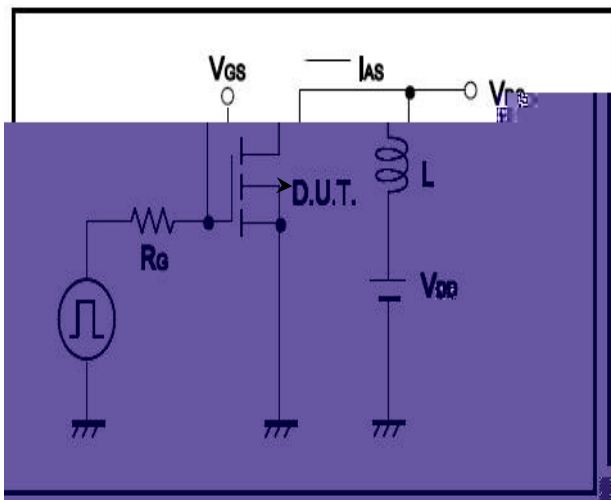


Fig.17 Avalanche Waveform

