

General Description

The ZM078P03S combines advanced trench MOSFET technology with a low resistance package to provide extremely low $R_{DS(ON)}$.

Product Summary

Features

Trench technology
 $R_{DS(ON)}$ to minimize conductive loss

Application

nd Synchronous Rectifier

Ordering Information:

Absolute Maximum Ratings $T_C = 25$

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	± 25	V
Continuous Drain Current	$I_{D@T_C=25}$	-13	A
	$I_{D@T_C=75}$	-9.9	A
	$I_{D@T_C=100}$	-8.2	A
Pulsed Drain Current	I_{DM}	-40	A
Total Power Dissipation	$P_D@T_C=25$	4.0	W
Total Power Dissipation	$P_D@T_A=25$	0.75	W
Operating Junction Temperature	T_J	-55 to 150	
Storage Temperature	T_{STG}	-55 to 150	
Single Pulse Avalanche Energy	E_{AS}	130	mJ

Thermal resistance

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal resistance, junction - case	R_{thJC}	-	-	32	° C/W
Thermal resistance, junction - ambient	R_{thJA}	-	-	170	° 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}	$V_{GS} = 0V, I_D = -250\mu A$	-30			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}	$V_{DS} = -30V, V_{GS} = 0V$			-1.0	μA
Gate- Source Leakage Current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			100	nA
Static Drain-source On Resistance		$V_{GS} = -10V, I_D = -9A$				
		$V_{GS} = -4.5V, I_D = -8A$				
Forward Transconductance	g_{FS}	$V_{DS} = -10V, I_D = -5A$				
Source-drain voltage	V_{SD}	$I_S = 9A$				

Fig.1 Power Dissipation Derating Curve

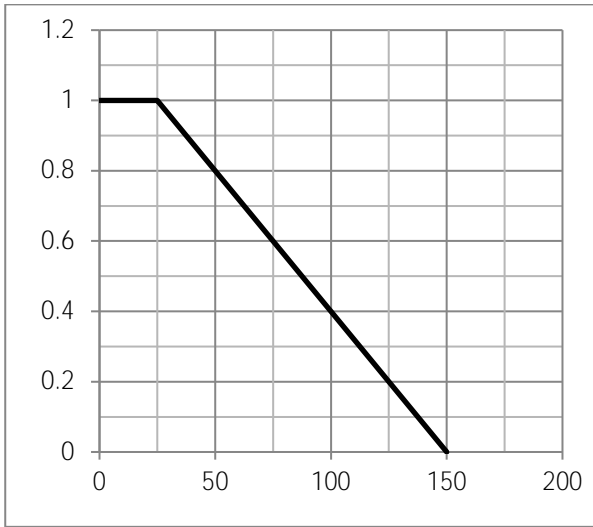


Fig.2 Typical output Characteristics

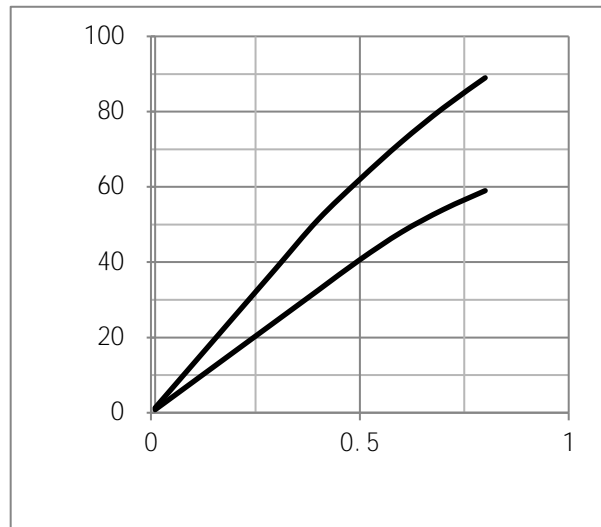


Fig.3 Threshold Voltage V.S Junction Temperature

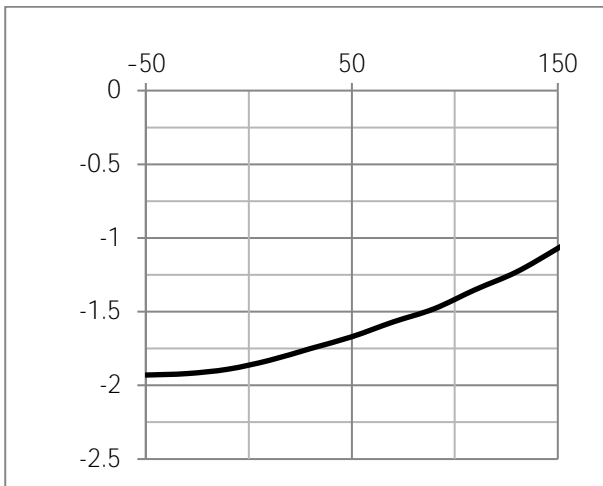


Fig.4 Resistance V.S Drain Current

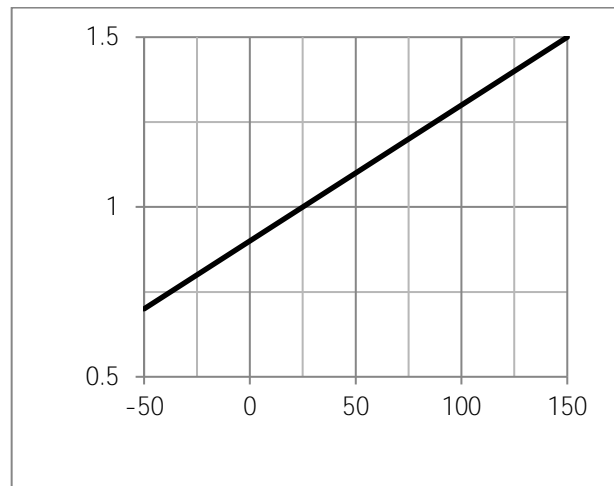
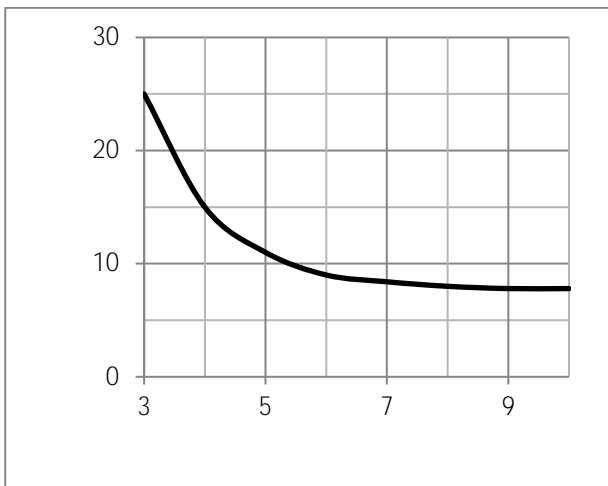
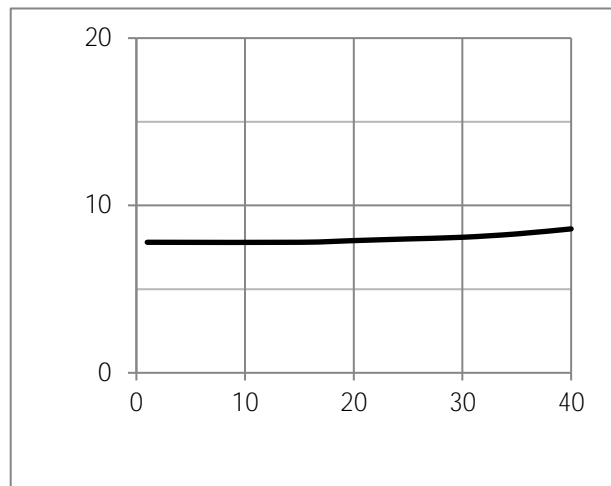


Fig.7 Switching Time Measurement Circuit

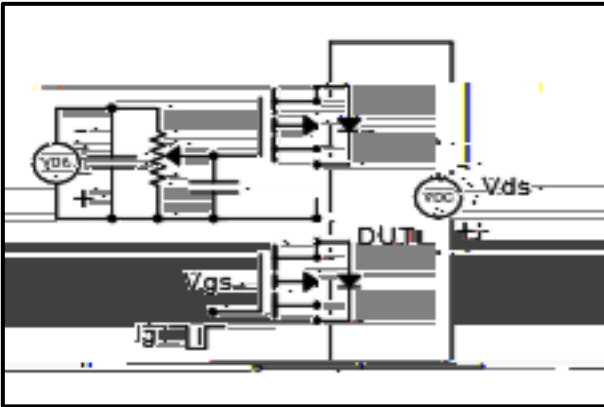


Fig.8 Gate Charge Waveform

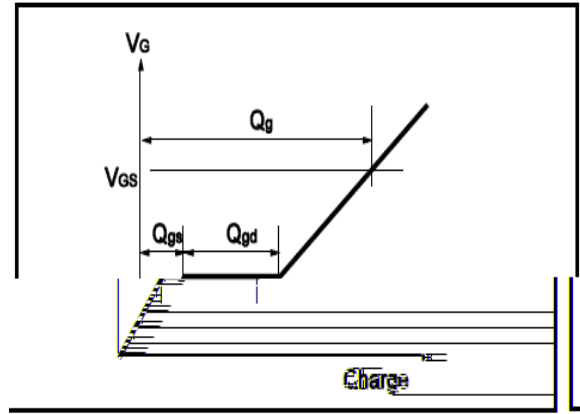


Fig.9 Switching Time Measurement Circuit

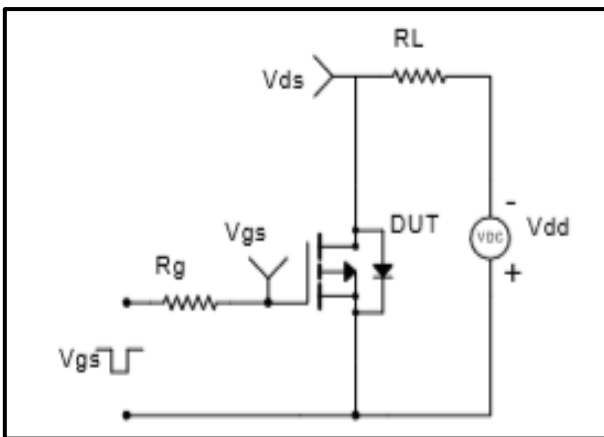


Fig.10 Gate Charge Waveform

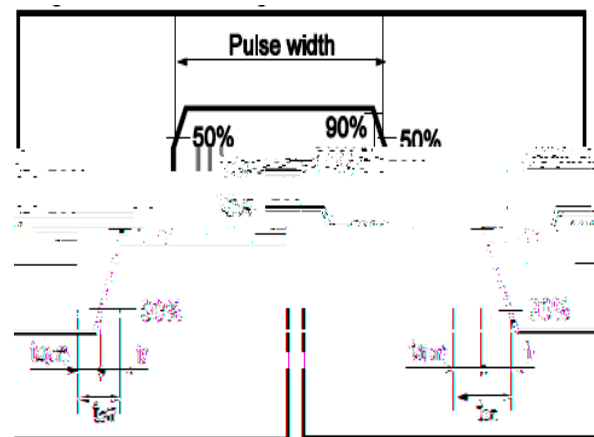


Fig.11 Avalanche Measurement Circuit

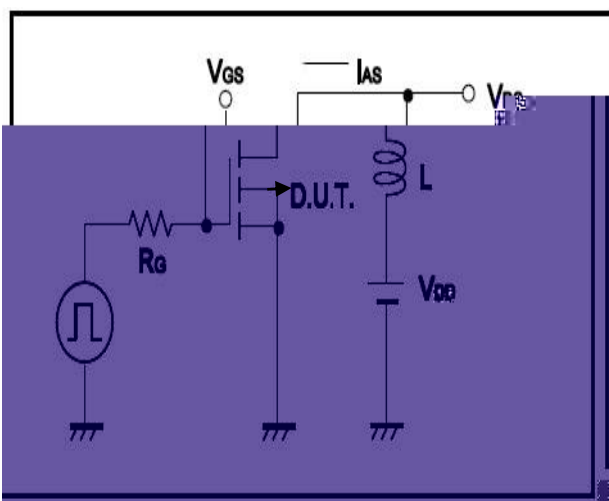


Fig.12 Avalanche Waveform

