

**General Description**

The ZMS040N10HP combines advanced SGT MOSFET technology with a low resistance package to provide extremely low  $R_{DS(ON)}$ .

**Features**

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

**Application**

Synchronous Rectification for AC-DC/DC-DC converter  
 Oring switches  
 Power Tools

**Product Summary**


$V_{DS} = 100V$

$R_{DS(ON)} = 4.2m$

$I_D = 160A$


**Ordering Information:**

Part NO.	ZMS040N10HP
Marking	ZMS040N10H
Packing Information	Bulk Tube
Basic ordering unit (pcs)	800

**Absolute Maximum Ratings  $T_C = 25$** 

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	100	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current	$I_D @ T_C = 25$	160	A
	$I_D @ T_C = 75$	121	A
	$I_D @ T_C = 100$	100	A
Pulsed Drain Current	$I_{DM}$	480	A
Total Power Dissipation	$P_D @ T_C = 25$	113	W
Total Power Dissipation	$P_D @ T_A = 25$	3.4	W
Operating Junction Temperature	$T_J$	-55 to 150	
Storage Temperature	$T_{STG}$	-55 to 150	
Single Pulse Avalanche Energy @ $L = 0.1mH$	$E_{AS}$	200	mJ

Avalanche Current@L=0.1mH	$I_{AS}$	35	A
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**Thermal resistance**

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal resistance, junction - case	$R_{thJC}$	-	-	1.1	° C/W
Thermal resistance, junction - ambient	$R_{thJA}$	-	-	37	° C/W
Soldering temperature, wave soldering for 10s	$T_{sold}$	-	-	265	° C

**Electronic Characteristics**

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	100			V
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{GS} = V_{DS}, I_D = 250\mu A$	2.0		4.0	V
Drain-Source Leakage Current	$I_{DSS}$	$V_{DS} = 100V, V_{GS} = 0V$			1.0	$\mu A$
Gate- Source Leakage Current	$I_{GSS}$	$V_{GS} = \pm 20V, V_{DS} = 0V$			$\pm 100$	nA
Static Drain-source On Resistance	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 25A$		4.2	5.2	m
Forward Transconductance	$g_{FS}$	$V_{DS} = 25V, I_D = 10A$		28		S
Source-drain voltage	$V_{SD}$	$I_S = 25A$			1.28	V

**Dynamic Characteristics**

Parameter	Symbol	Condition	Min.	Typ
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Fig.7 On-Resistance VS Gate Source Voltage

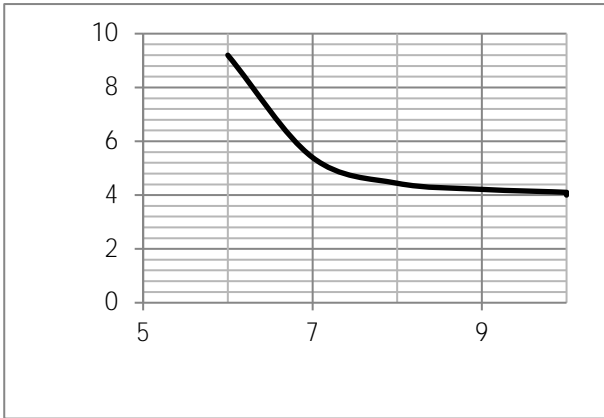


Fig.8 On-Resistance V.S Junction Temperature

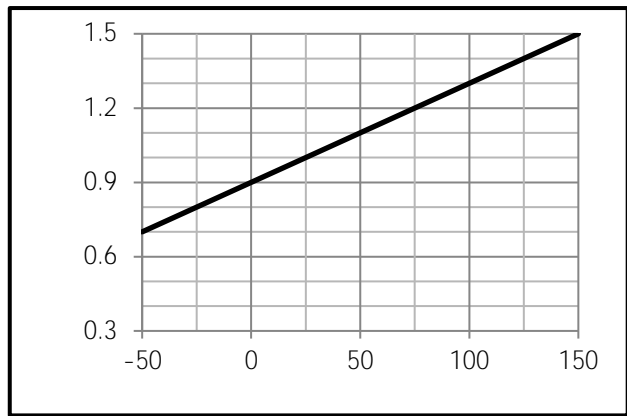


Fig.9 SOA Maximum Safe Operating Area

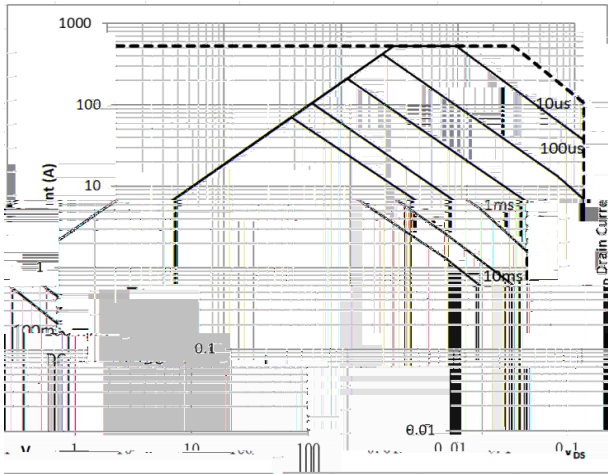


Fig.10 ID-Junction Temperature

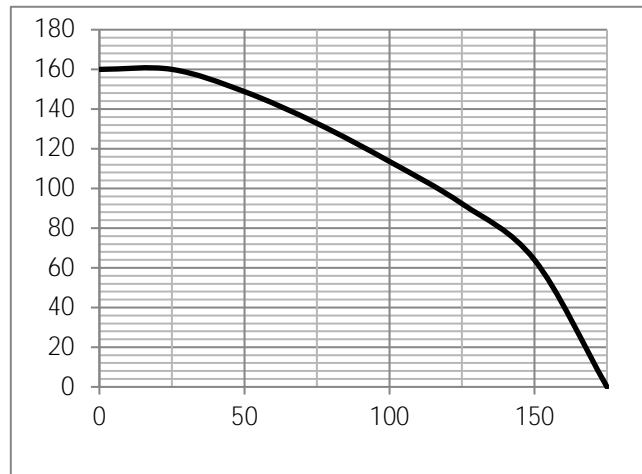


Fig.11 Switching Time Measurement Circuit

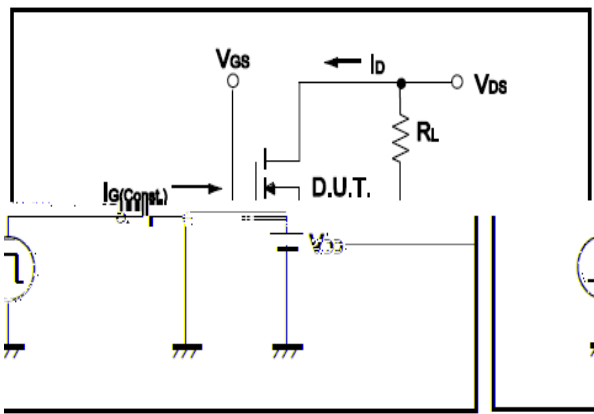


Fig.12 Gate Charge Waveform

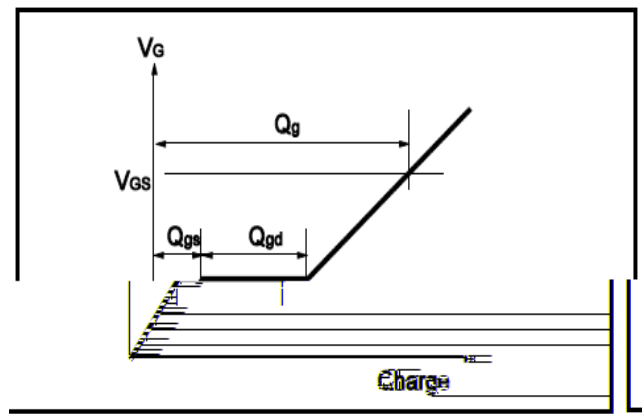


Fig.13 Switching Time Measurement Circuit

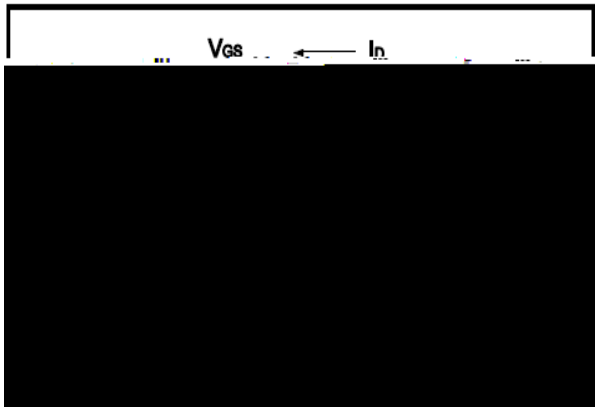


Fig.14 Gate Charge Waveform

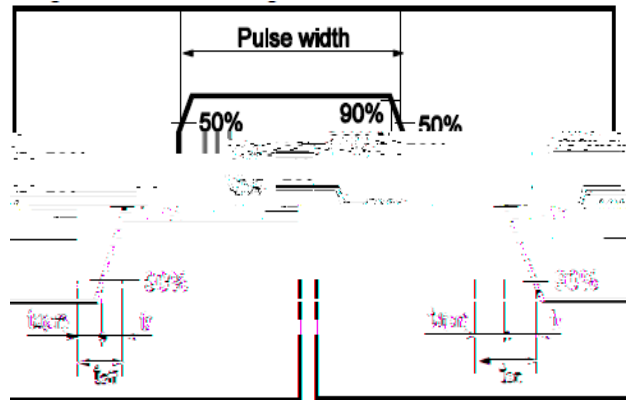


Fig.15 Avalanche Measurement Circuit

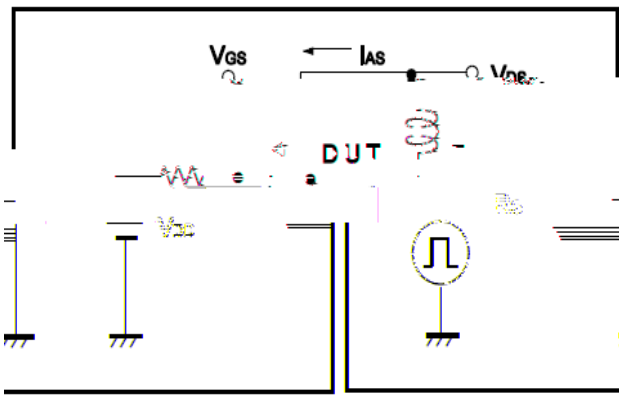
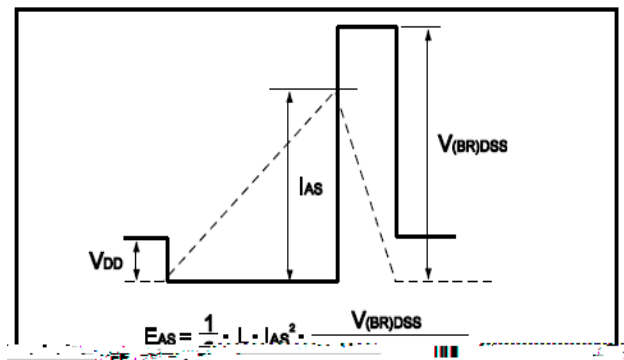


Fig.16 Avalanche Waveform





**Dimensions TO-220**

Unit mm

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