

**• General Description**

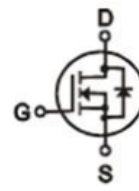
The ZMS030N06HB combines advanced trench MOSFET technology with a low resistance package to provide extremely low  $R_{DS(ON)}$ .

**• Features**

- Advance device constructure
- Low  $R_{DS(ON)}$  to minimize conduction loss
- Low Gate Charge for fast switching
- Low Thermal resistance

**• Application**

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

**• Product Summary**

 $V_{DS} = 60V$ 
 $R_{DS(ON)} = 3m\Omega$ 
 $I_D = 150A$ 

**TO-263**
**• Ordering Information:**

Part NO.	ZMS030N06HB
Marking	ZMS030N06H
Packing Information	REEL TAPE
Basic ordering unit (pcs)	500

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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	60	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current	$I_D @ TC=25^\circ C$	150	A
	$I_D @ TC=75^\circ C$	114	A
	$I_D @ TC=100^\circ C$	94	A
Pulsed Drain Current ①	$I_{DM}$	400	A
Total Power Dissipation( $TC=25^\circ C$ )	$P_D @ TC=25^\circ C$	150	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
Avalanche Current@L=0.1mH	$I_{AS}$	60	A

**•Thermal resistance**

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal resistance, junction - case	R <sub>thJC</sub>	-	-	0.75	° C/W
Thermal resistance, junction - ambient	R <sub>thJA</sub>	-	-	70	° C/W
Soldering temperature, wavesoldering for 10s	T <sub>sold</sub>	-	-	265	° C

**•Electronic Characteristics**

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =250uA	60			V
Gate Threshold Voltage	V <sub>GS(TH)</sub>	V <sub>GS</sub> =V <sub>DS</sub> , I <sub>D</sub> =250uA	2		4	V
Drain-Source Leakage Current	I <sub>DSS</sub>	V <sub>DS</sub> =60V, V <sub>GS</sub> =0V			1.0	uA
Gate- Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V			±100	nA
Static Drain-source On Resistance	R <sub>DS(ON)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =30A		3	3.9	mΩ
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =40A		28		s
Source-drain voltage	V <sub>SD</sub>	I <sub>S</sub> =30A		0.85	1.2	V

**•Electronic Characteristics**

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Input capacitance	C <sub>iss</sub>	f = 1MHz	-	3500	-	pF
Output capacitance	C <sub>oss</sub>		-	880	-	
Reverse transfer capacitance	C <sub>rss</sub>		-	110	-	

**•Gate Charge characteristics(T<sub>a</sub> = 25°C)**

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Total gate charge	Q <sub>g</sub>	V <sub>DD</sub> =25V	-	46	-	nC
Gate - Source charge	Q <sub>gs</sub>	I <sub>D</sub> = 15A	-	15	-	
Gate - Drain charge	Q <sub>gd</sub>	V <sub>GS</sub> = 10V	-	7	-	

Note: ① Pulse Test : Pulse width ≤ 10μs, Duty cycle ≤ 1% ;

Fig.1 Gate-Charge Characteristics

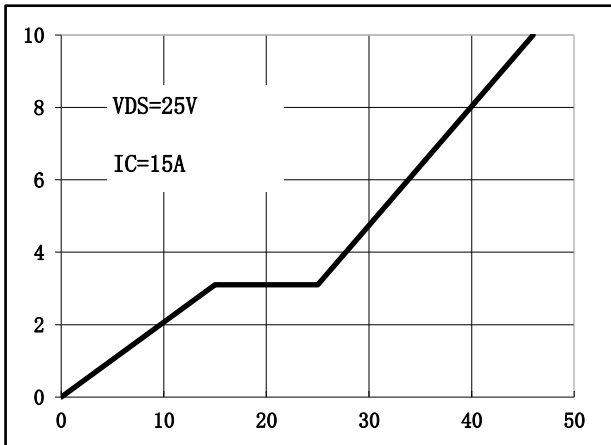


Fig.2 Capacitance Characteristics

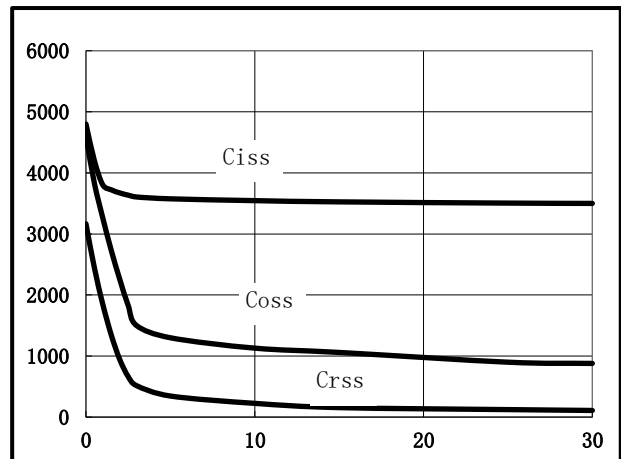


Fig.3 Power Dissipation

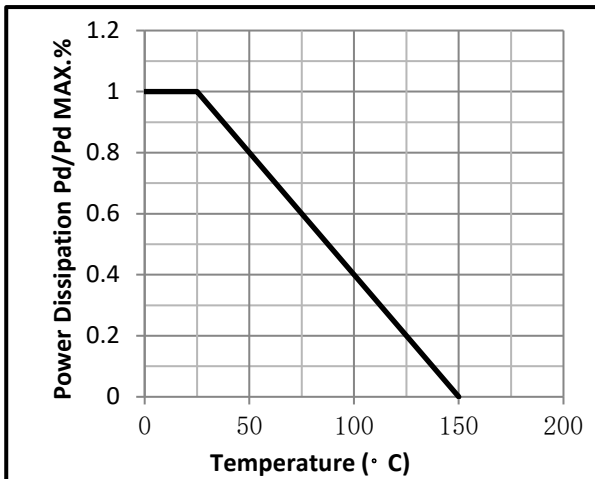


Fig.4 Typical output Characteristics

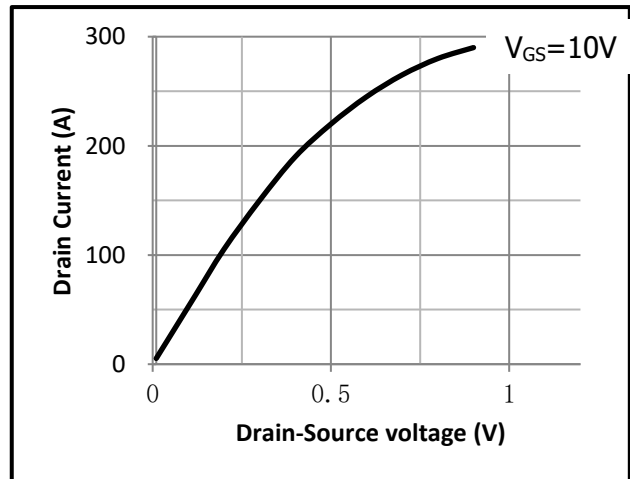


Fig.5 Threshold Voltage V.S Junction Temperature

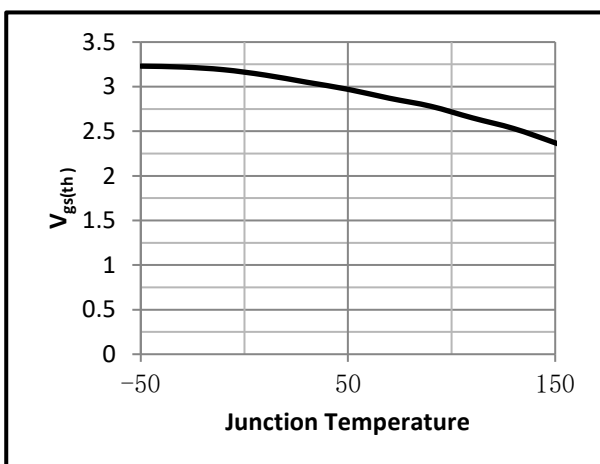


Fig.6 Resistance V.S Drain Current

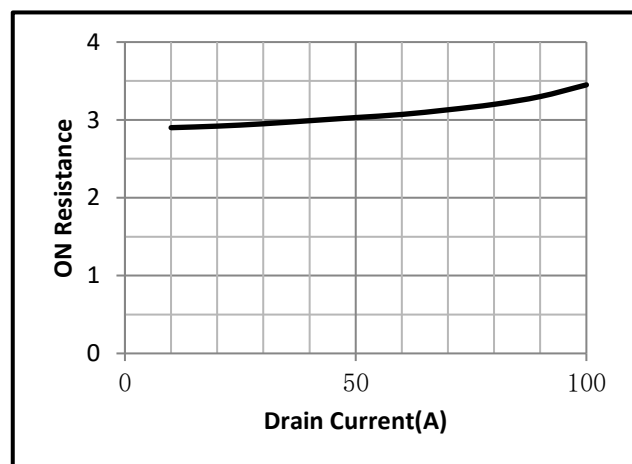


Fig.7 On-Resistance VS Gate Source Voltage

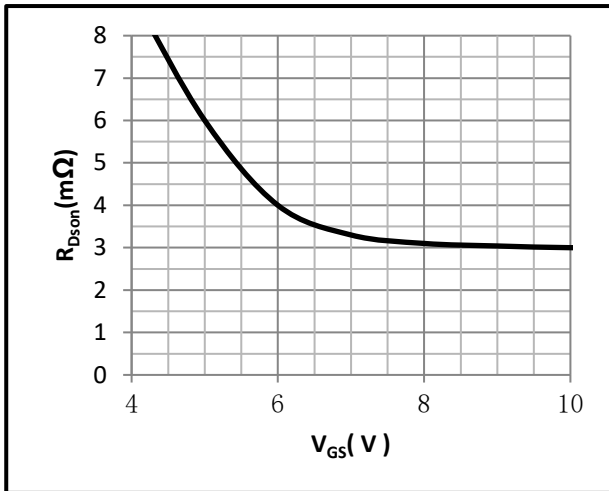


Fig.8 On-Resistance V.S Junction Temperature

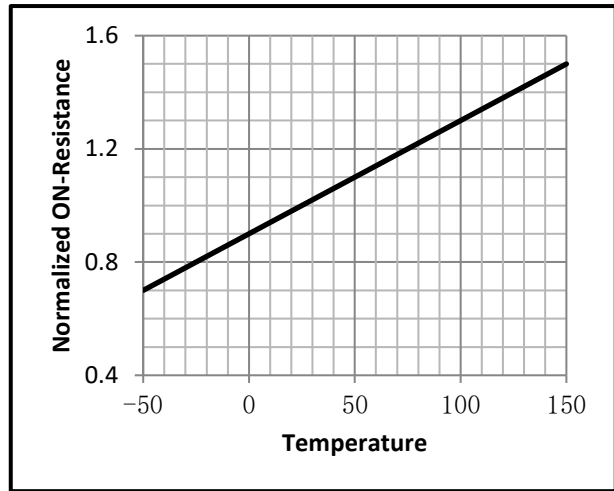


Fig.9 Switching Time Measurement Circuit

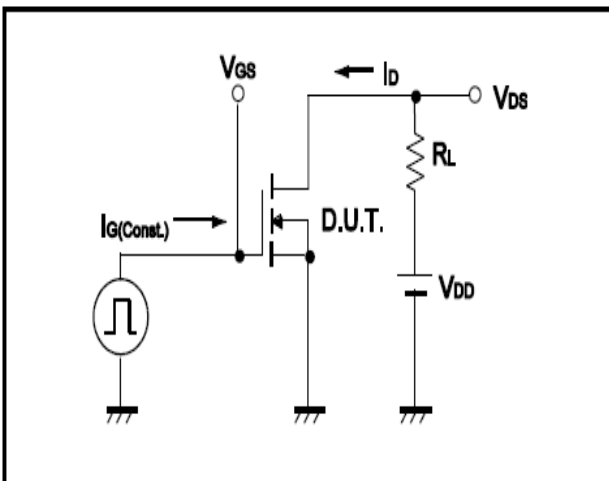


Fig.10 Gate Charge Waveform

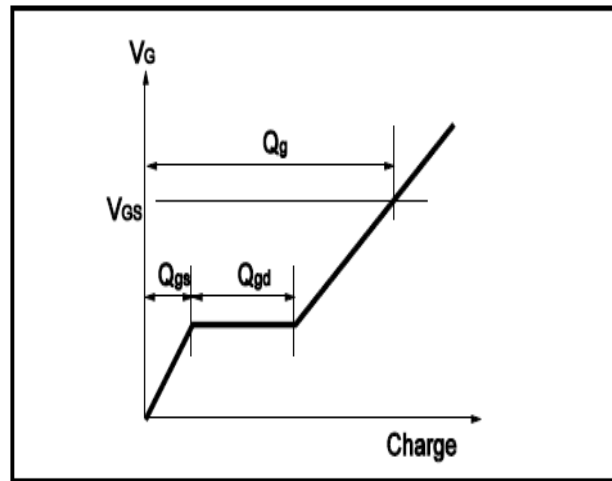


Fig.11 Switching Time Measurement Circuit

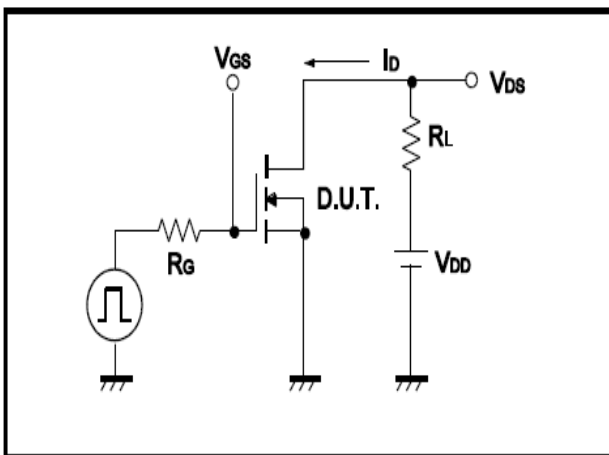
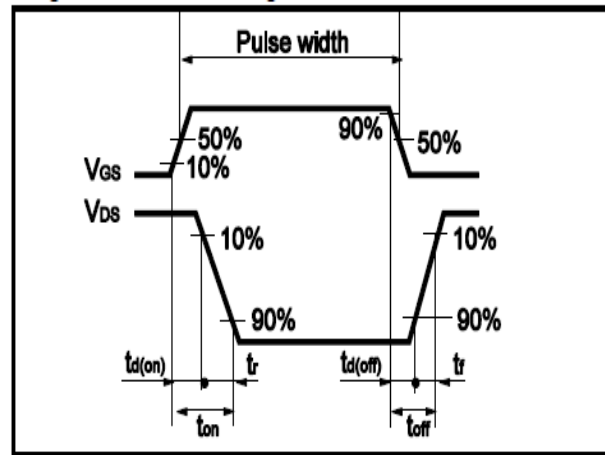


Fig.12 Gate Charge Waveform



• Dimensions (TO-220)

Unit: mm

SYMBOL	MIN	TYP	MAX	SYMBOL	MIN	TYP	MAX
A	4.42		4.72	E	8.99		9.29
B	1.22		1.32	e1	2.44		2.64
b	0.76		0.86	e2	4.98		5.18
b1	1.22		1.32	L1	15.19		15.79
b2	0.33		0.43	L2	2.29		2.79
C	1.22		1.32	L3	1.3		1.75
D	9.95		10.25				

