• General Description

The ZMS030N06D combines advanced trench MOSFET technology with a low resistance package to provide extremely low $R_{DS(ON)}$.

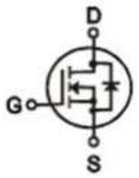
• Features

- ■ 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

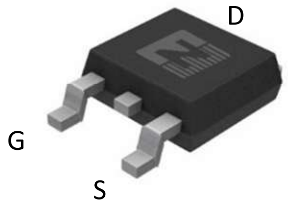
• Product Summary



V_{DS} =60V

$R_{DS(ON)}$ =3.5mΩ

I_D =90A



•Ordering Information:

Part NO.	ZMS030N06D
Marking	ZMS030N06
Packing Information	REEL TAPE
Basic ordering unit (pcs)	2500

•Absolute Maximum Ratings （T_C =25℃）

Parameter	**Symbol**	Rating	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D@TC=25℃	90	A
	I_D@TC=75℃	68	A
	I_D @TC=100℃	57	A
Pulsed Drain Current ①	I_{DM}	360	A
Total Power Dissipation(TC=25℃)	P_D@TC=25℃	60	W
Total Power Dissipation(TA=25℃)	P_D@TA=25℃	2.0	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}	180	mJ

•Thermal resistance

Parameter	**Symbol**	**Min.**	**Typ.**	**Max.**	**Unit**
Thermal resistance, junction - case	R_{thJC}	-	-	2.1	° C/W
Thermal resistance, junction - ambient	R_{thJA}	-	-	62.5	° 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 =250uA	60			V
Gate Threshold Voltage	$V_{GS(TH)}$	V_{GS} =V_{DS}, I_D =250uA	1.2		2.5	V
Drain-Source Leakage Current	I_{DSS}	V_{DS}=60V, V_{GS} =0V			1.0	uA
Gate- Source Leakage Current	I_{GSS}	V_{GS}=±20V ,V_{DS} =0V			±100	nA
Static Drain-source On Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=20A		3.5	4.5	mΩ
		V_{GS}=4.5V, I_D=15A		4.8	6.2	mΩ
Forward Transconductance	g_{FS}	V_{DS} =25V, I_D=10A		16		s
Source-drain voltage	V_{SD}	Is=20A			1.28	V

•Electronic Characteristics

Parameter	**Symbol**	**Condition**	**Min.**	**Typ**	**Max.**	**Unit**
Input capacitance	Ciss	f = 1MHz VDS=25V	-	3500	-	pF
Output capacitance	Coss		-	880	-	
Reverse transfer capacitance	Crss		-	105	-	

•Gate Charge characteristics(T_a = 25℃)

Parameter	**Symbol**	**Condition**	**Min.**	**Typ**	**Max.**	**Unit**
Total gate charge	Qg	VDD = 25V	-	46	-	nC
Gate - Source charge	Qgs	ID = 20A	-	15	-	
Gate - Drain charge	Qgd	VGS = 10V	-	7	-	

Note: ① Pulse Test : Pulse width ≤ 300μs, Duty cycle ≤ 2% ;

Fig.1 Gate-Charge Characteristics

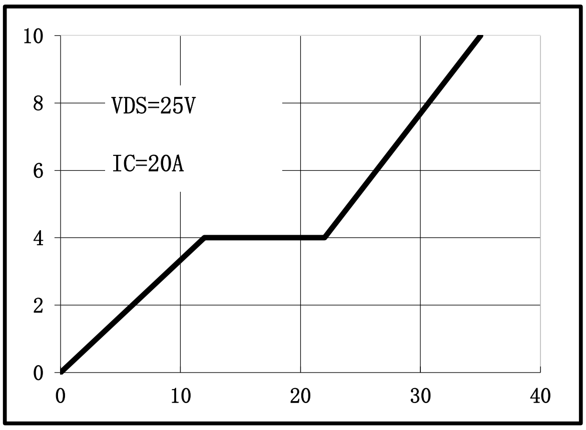


Fig.2 Capacitance Characteristics

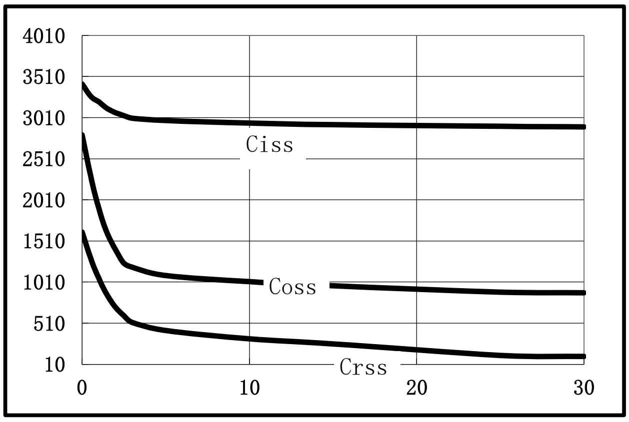


Fig.3 Power Dissipation

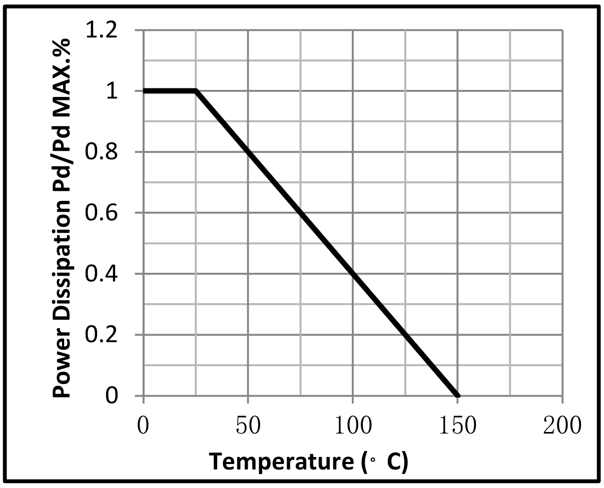


Fig.4 Typical output Characteristics

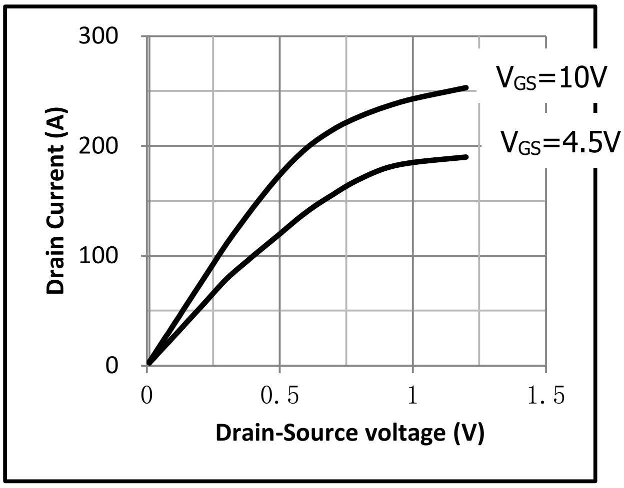


Fig.5 Threshold Voltage V.S Junction Temperature

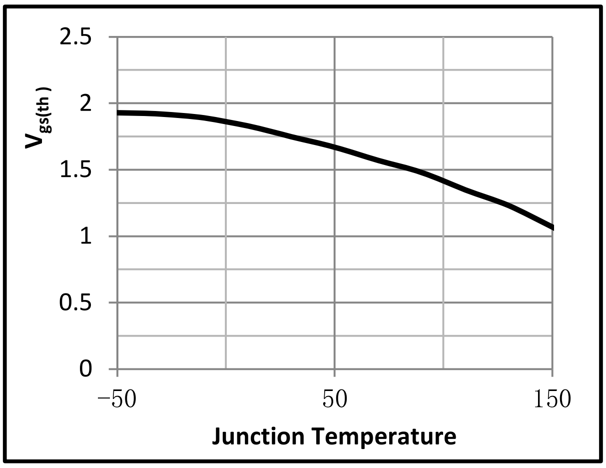


Fig.6 Resistance V.S Drain Current

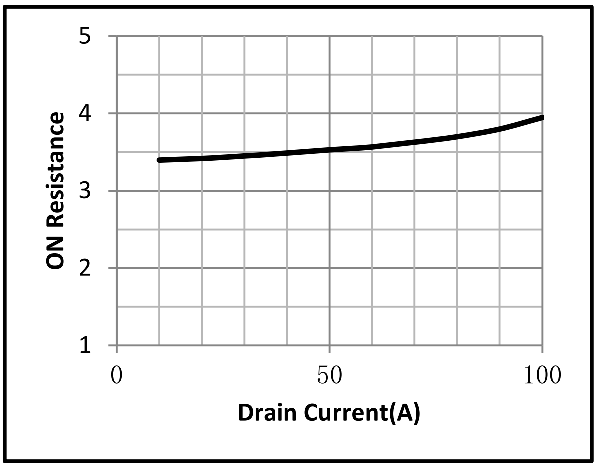


Fig.7 On-Resistance VS Gate Source Voltage

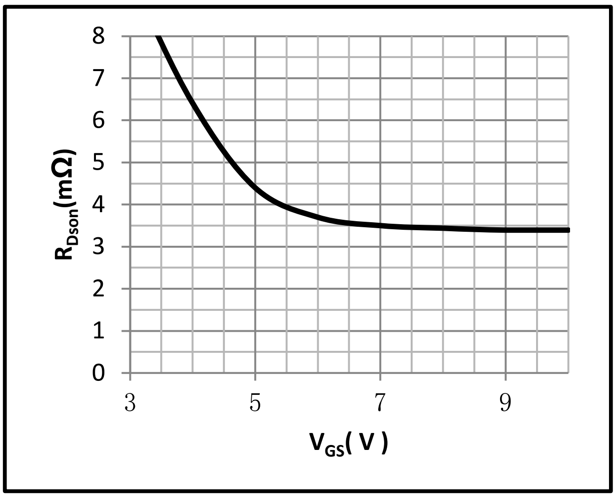


Fig.8 On-Resistance V.S Junction Temperature

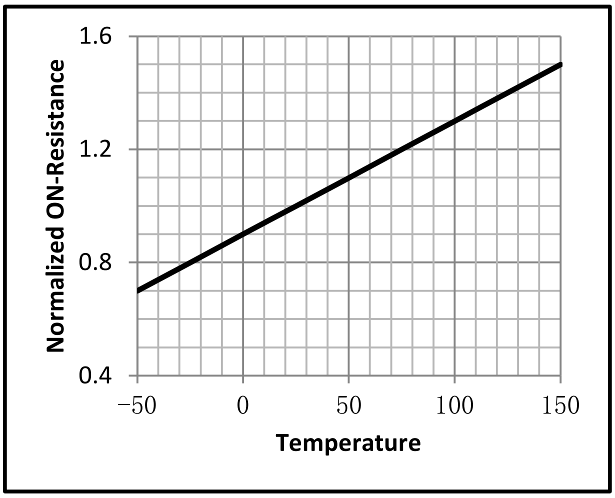


Fig.9 Switching Time Measurement Circuit

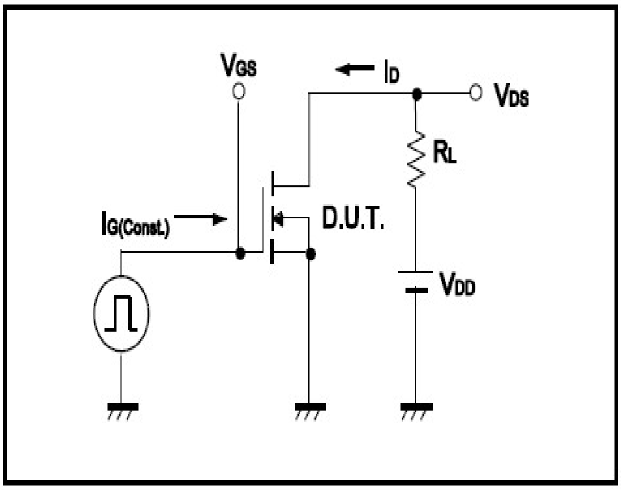


Fig.10 Gate Charge Waveform

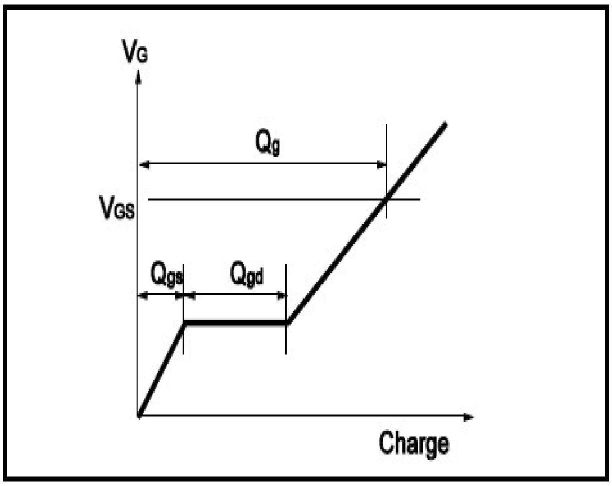


Fig.11 Switching Time Measurement Circuit

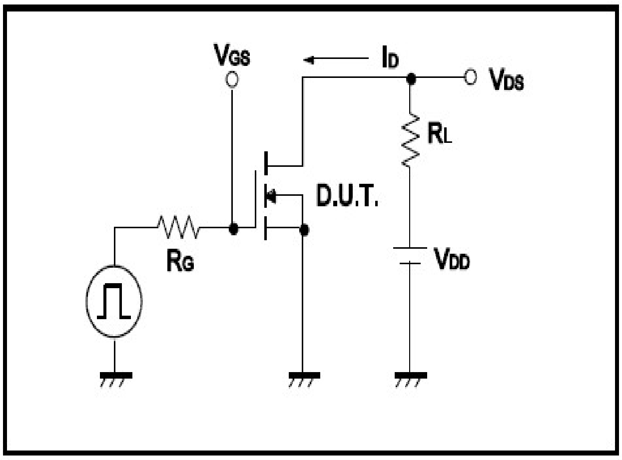
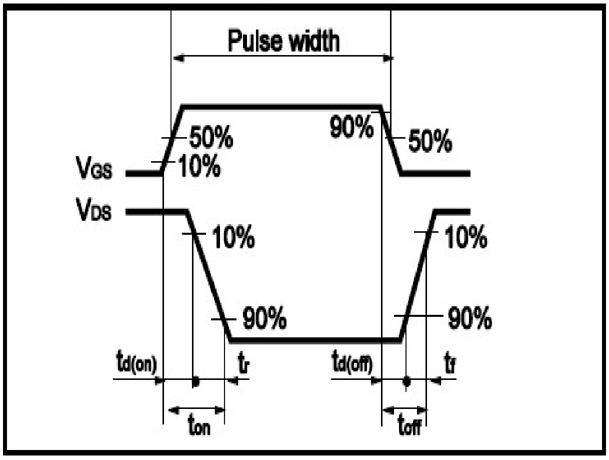
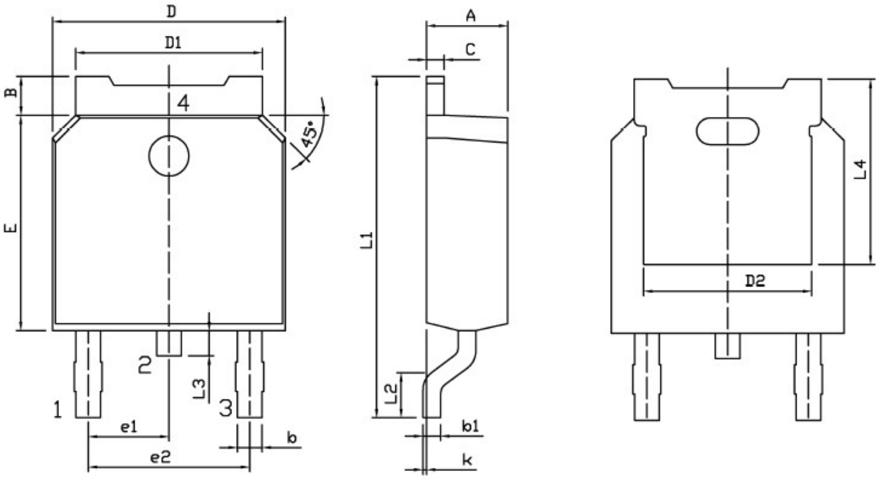


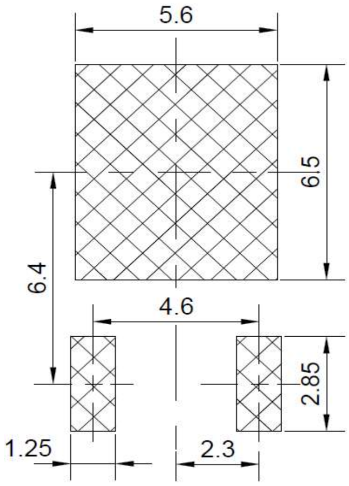
Fig.12 Gate Charge Waveform



● Dimensions (TO-252)



Land Pattern
(Only for Reference)



Dimensions In Millimeters					
Symbol	MIN	MAX	Symbol	MIN	MAX
A	2.20	2.40	E	5.95	6.25
B	0.95	1.25	e1	2.24	2.34
b	0.70	0.90	e2	4.43	4.73
b1	0.45	0.55	L1	9.85	10.35
C	0.45	0.55	L2	1.70	2.00
D	6.45	6.75	L3	0.60	0.90
D1	5.10	5.50	L4	5.05	
D2	4.85		k	0.00	0.10