● General Description

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

● Features

■Low $R_{DS(ON)}$ to minimize conductive loss

■Low Gate Charge for fast switching

■Low Thermal resistance

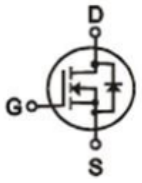
●Application

■ Synchronous Rectification for AC-DC/DC-DC converter

■ Load switch

■Power Tools

● Product Summary

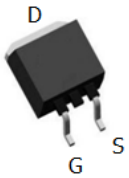


V_{DS} =100V

$R_{DS(ON)}$ =2.8mΩ

I_D =190A

RoHS



TO-263

●Ordering Information:

Part NO.	ZMS030N10HB
Marking	ZMS030N10H
Packing Information	REEL TAPE
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}	±20	V
Continuous Drain Current	I_D@T_C=25℃	190①	A
	I_D@T_C=75℃	144	A
	I_D @T_C=100℃	119	A
Pulsed Drain Current ②	I_{DM}	570	A
Total Power Dissipation	P_D@T_C=25℃	156	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}	312	mJ

●Thermal resistance

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal resistance, junction - case	R_{thJC}	-	-	0.8	°C/W
Thermal resistance, junction - ambient③	R_{thJA}	-	-	36	°C/W
Soldering temperature, wave soldering for 10s	T_{sold}	-	-	260	°C

●Electronic Characteristics

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} =0V, I_D =250uA	100			V
Gate Threshold Voltage	$V_{GS(TH)}$	V_{GS} =V_{DS}, I_D =250uA	2.0		4.0	V
Drain-Source Leakage Current	I_{DSS}	V_{DS}=100V, 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=40A		2.8	3.6	mΩ
Forward Transconductance	g_{FS}	V_{DS} =10V, I_D=15A		30		s
Source-drain voltage	V_{SD}	Is=40A			1.28	V

●Dynamic Characteristics

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Input capacitance	Ciss	V_{GS}=0V, V_{DS}=25V f = 1MHz	-	5490	-	pF
Output capacitance	Coss		-	3060	-	
Reverse transfer capacitance	Crss		-	309	-	
Total gate charge	Qg	V_{DD} = 25V I_D = 8A V_{GS} = 10V	-	97	-	nC
Gate - Source charge	Qgs		-	30	-	
Gate - Drain charge	Qgd		-	19	-	
Body Diode Reverse Recovery Time	trr	I_F=20A, di/dt=100A/μs		58		nS
Body Diode Reverse Recovery Charge	Qrr	I_F=20A, di/dt=100A/μs		96		nC

Fig.1 Gate-Charge Characteristics

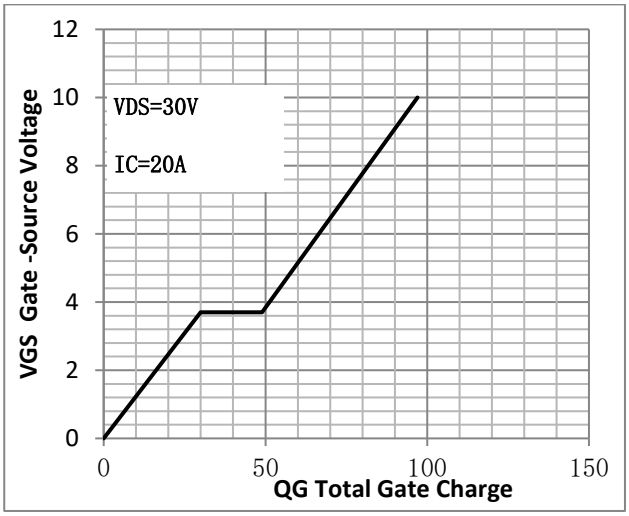


Fig.2 Capacitance Characteristics

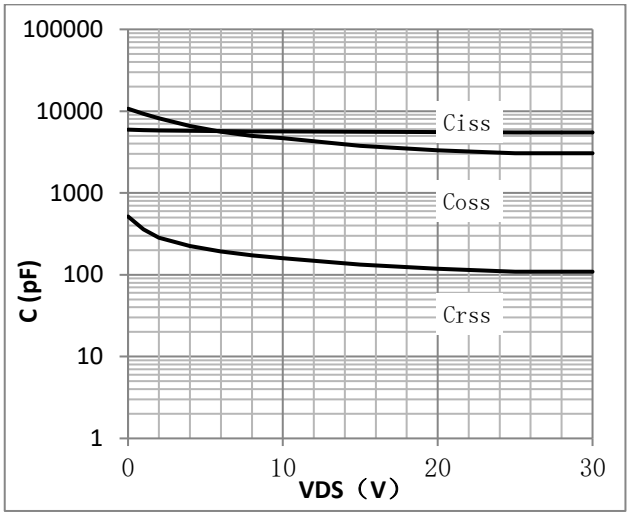


Fig.3 Power Dissipation

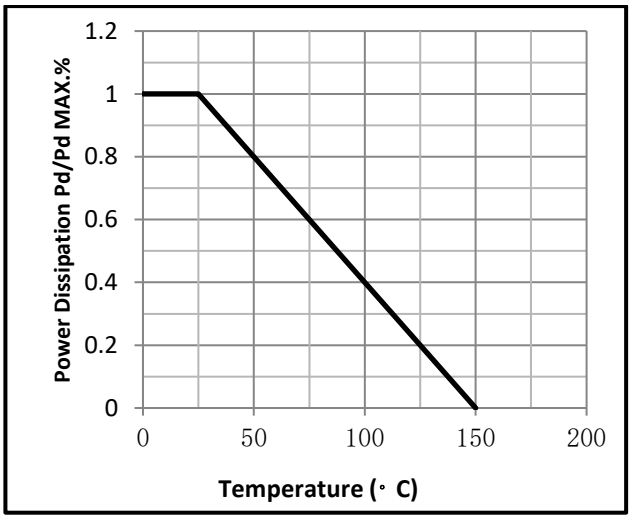


Fig.4 Typical output Characteristics

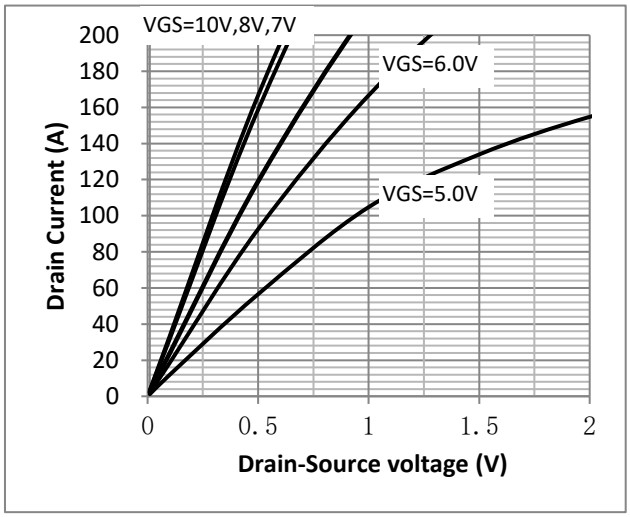


Fig.5 Threshold Voltage V.S Junction Temperature

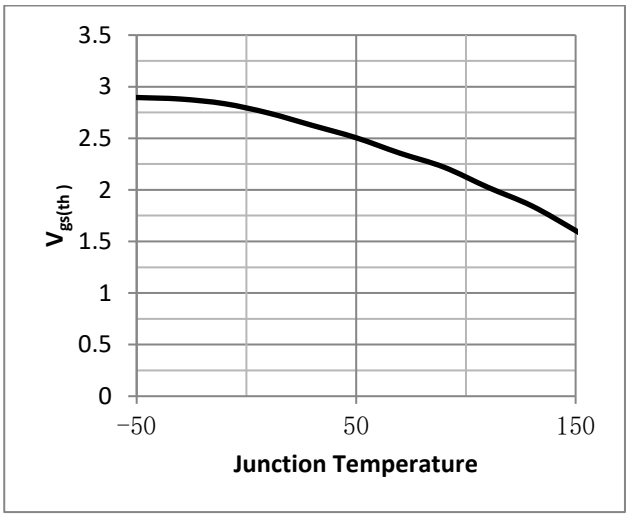


Fig.6 Resistance V.S Drain Current

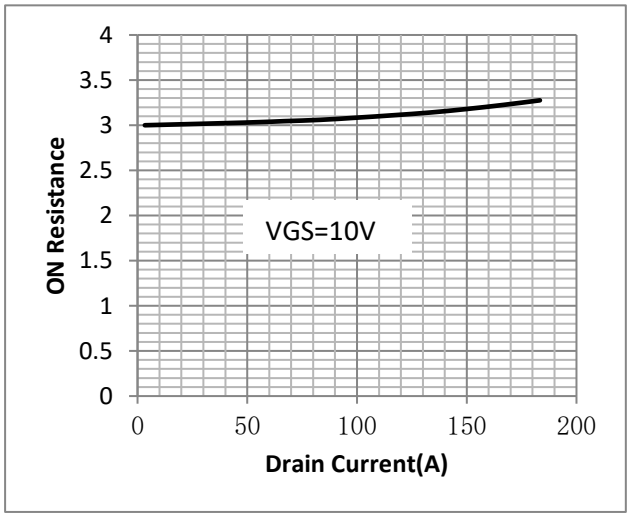


Fig.7 On-Resistance VS Gate Source Voltage

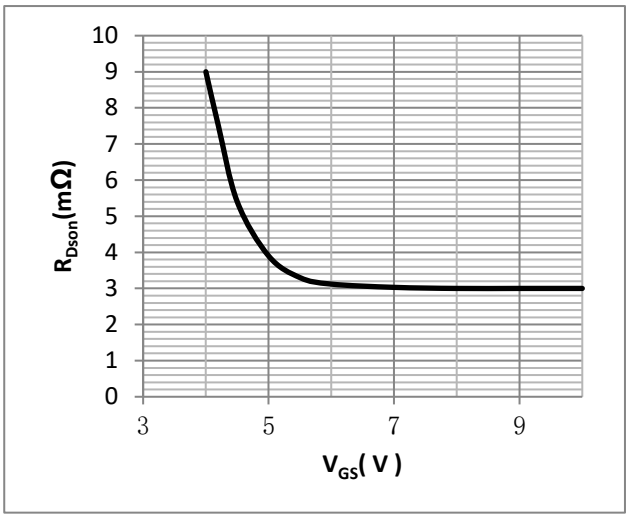


Fig.8 On-Resistance V.S Junction Temperature

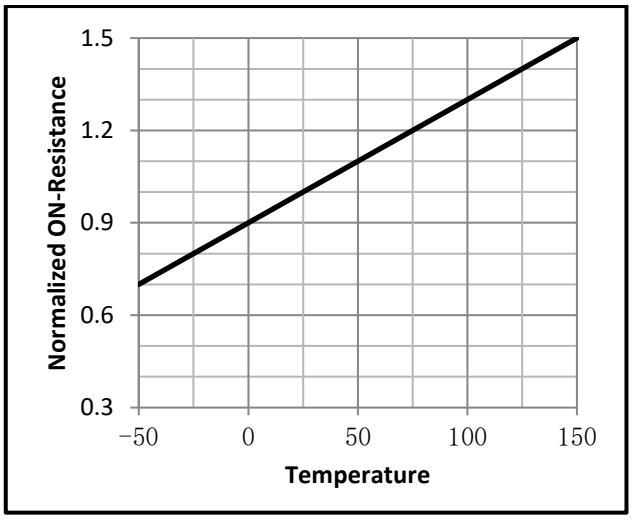


Fig.9 SOA Maximum Safe Operating Area

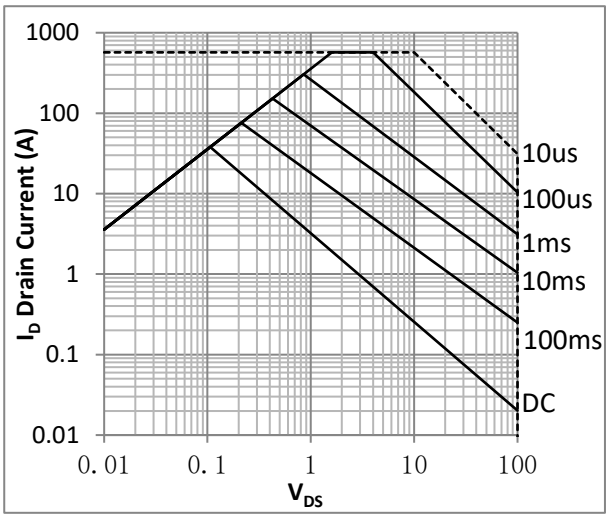


Fig.10 ID-Junction Temperature

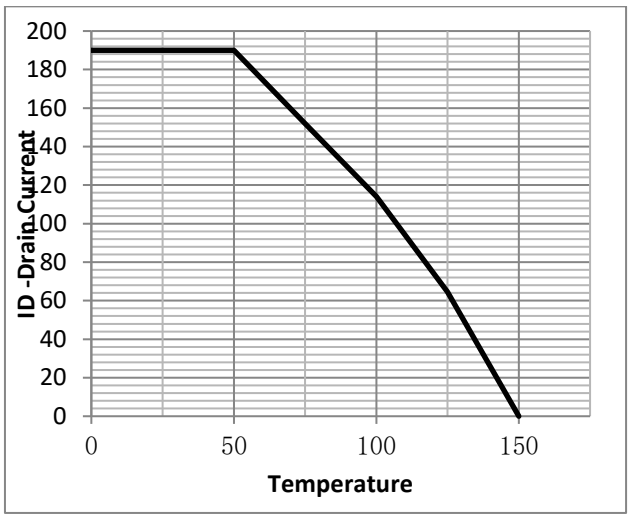


Figure.11 Diode Forward Voltage vs. Current

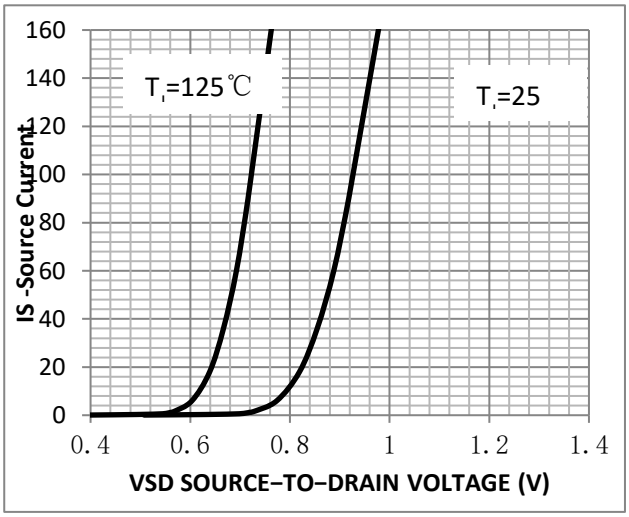


Figure.12 Transfer Characteristics

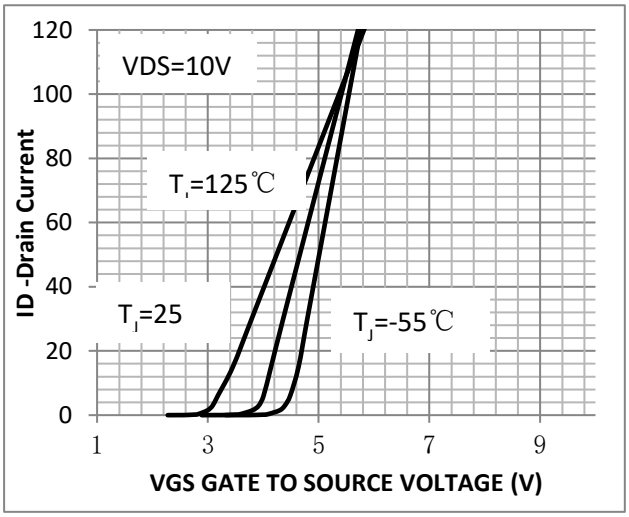


Fig.12 Switching Time Measurement Circuit

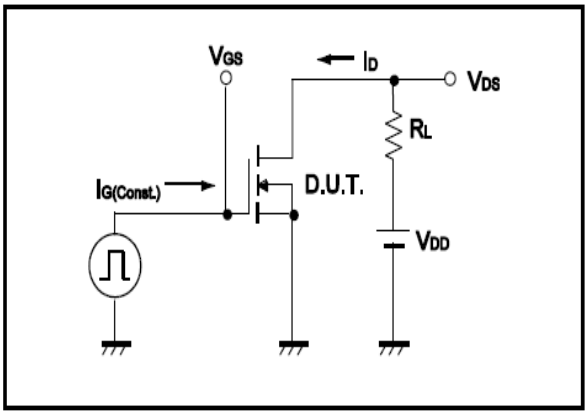


Fig.13 Gate Charge Waveform

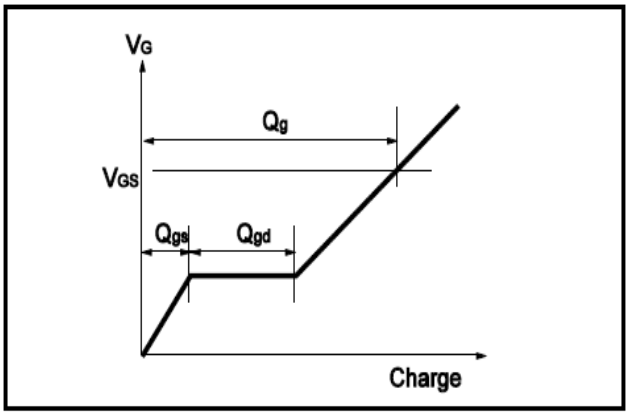


Fig.14 Switching Time Measurement Circuit

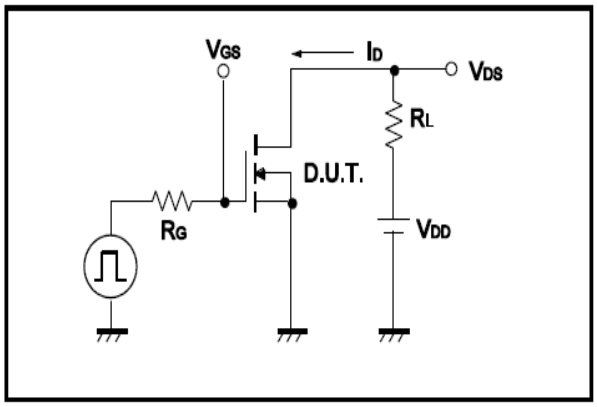


Fig.15 Gate Charge Waveform

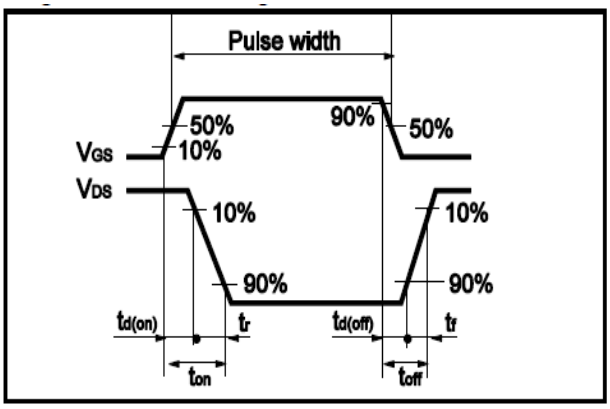


Fig.16 Avalanche Measurement Circuit

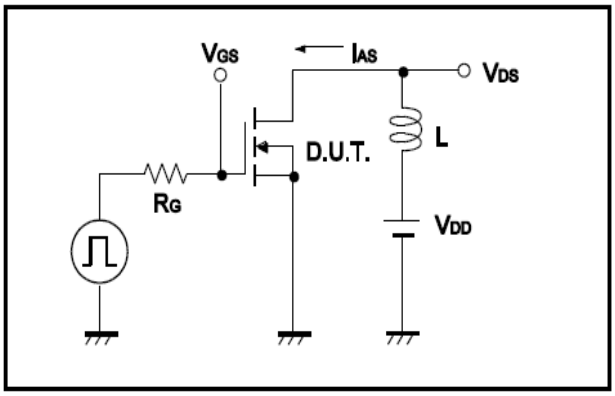
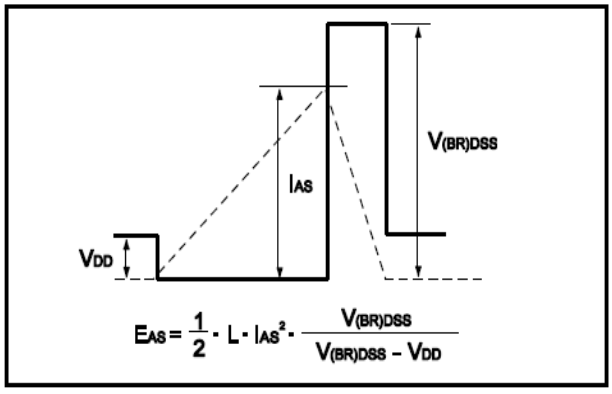


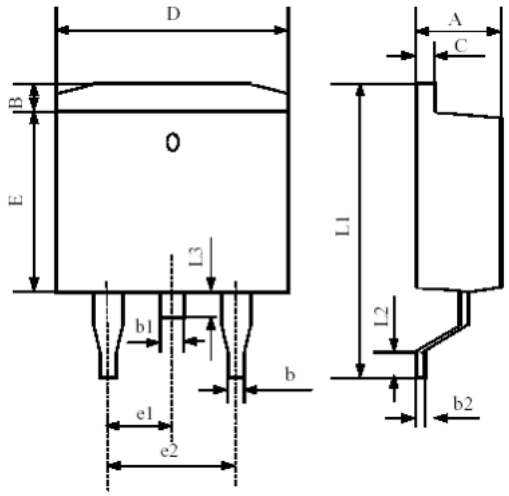
Fig.17 Avalanche Waveform



● Dimensions (TO-263)

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				



Note: ① silicon limited

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

③ Device mounted on FR-4 substrate PC board, 2oz copper, with thermal bias to bottom layer 1inch square copper plate；

Disclaimer

● Reproducing and modifying information of the document is prohibited without permission from ZMJ SEMICONDDUCTORS CO.,LTD.

● ZMJ SEMICONDDUCTORS CO.,LTD. reserves the rights to make changes of the content herein the document anytime without notification. Please refer to our website for the latest document.

● ZMJ SEMICONDDUCTORS CO.,LTD. disclaims any and all liability arising out of the application or use of any product including damages incidentally and consequentially occurred.

● ZMJ SEMICONDDUCTORS CO.,LTD. does not assume any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

● Applications shown on the herein document are examples of standard use and operation. Customers are responsible in comprehending the suitable use in particular applications. ZMJ SEMICONDDUCTORS CO.,LTD. makes no representation or warranty that such applications will be suitable for the specified use without further testing or modification.

● The products shown herein are not designed and authorized for equipments relating to human life and for any applications concerning life-saving or life-sustaining, such as medical instruments, aerospace machinery et cetera. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify ZMJ SEMICONDDUCTORS CO.,LTD. for any damages resulting from such improper use or sale.

● Since ZMJ uses lot number as the tracking base, please provide the lot number for tracking when complaining.