

80V N-Channel Power SpeedFET

● General Description

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

● Features

- AEC-Q101 Qualified
- Low $R_{DS(ON)}$ to minimize conductive loss
- Low Gate Charge for fast switching
- Low Thermal resistance

● Application

- BLDC Motor driver
- DC-DC
- Load Switch

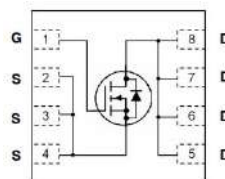
● Ordering Information:

Part NO.	KWZMS015N08H-V
Marking	ZMS015N08H
Packing Information	REEL TAPE
Basic ordering unit (pcs)	2500

● Absolute Maximum Ratings ($T_C=25^\circ\text{C}$)

Parameter	Symbol	Conditions	Value	Unit
Drain-Source Voltage	V_{DS}	$25^\circ\text{C} \leq T_j \leq 175^\circ\text{C}$	80	V
Gate-Source Voltage ^①	V_{GS}		± 20	V
Continuous Drain Current	I_D	$T_C=25^\circ\text{C}$	228	A
	I_D	$T_C=75^\circ\text{C}$	187	A
	I_D	$T_C=100^\circ\text{C}$	162	A
Pulsed Drain Current ^①	I_{DM}	Pulsed; $t_p \leq 10 \mu\text{s}$; $T_{mb} = 25^\circ\text{C}$;	684	A
Total Power Dissipation	P_D	$T_C=25^\circ\text{C}$	214	W
Total Power Dissipation	P_D	$T_A=25^\circ\text{C}$	4.3	W
Operating Junction Temperature	T_J		-55 to +175	$^\circ\text{C}$
Storage Temperature	T_{STG}		-55 to +175	$^\circ\text{C}$
Single Pulse Avalanche Energy	E_{AS}	$L=0.1\text{mH}$, $V_{GS}=10\text{V}$, $R_g=25\Omega$,	480	mJ
		$L=0.3\text{mH}$, $V_{GS}=10\text{V}$, $R_g=25\Omega$,	1008	mJ
ESD Level (HBM)	CLASS 2			

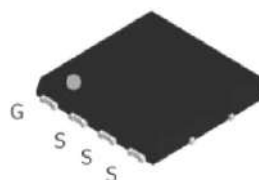
● Product Summary



$$V_{DS} = 80\text{V}$$

$$R_{DS(ON)} = 1.5\text{m}\Omega$$

$$I_D = 228\text{A}$$



DFN8*8

● **Thermal resistance**

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal resistance, junction - case	RthJC		-	0.7	°C/W
Thermal resistance, junction-ambient	RthJA ^②		-	35	°C/W
Soldering temperature	Tsold		-	260	°C

● **Electronic Characteristics**

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V, I _D = 250uA	80			V
Gate Threshold Voltage	V _{GS(TH)}	V _{GS} = V _{DS} , I _D = 250uA	2.0	2.7	4.0	V
Drain-Source Leakage Current	I _{DSS}	V _{GS} = 0V, V _{DS} = 80V			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		1.5	1.95	mΩ
Forward Transconductance	g _{FS}	V _{GS} = 5V, I _{SD} = 20A		60		s
Diode Forward Voltage	V _{FSD}	V _{GS} = 0V, I _{SD} = 40A			1.3	V

● **Dynamic characteristics**

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Input capacitance	Ciss	f = 1MHz, V _{DS} = 25V	-	9130	-	pF
Output capacitance	Coss		-	6640	-	
Reverse transfer capacitance	Crss		-	117	-	
Gate Resistance	Rg	f = 1MHz	-	2.5		Ω
Total gate charge	Qg	V _{DD} = 15V, I _D = 20A, V _{GS} = 10V	-	121	-	nC
Gate - Source charge	Qgs		-	24	-	
Gate - Drain charge	Qgd		-	23	-	
Turn-ON Delay time	t _{D(on)}	V _{GS} = 10V, V _{DS} = 15V, R _G = 3.3Ω, I _D = 20A	-	19	-	ns
Turn-ON Rise time	t _r		-	14	-	ns
Turn-Off Delay time	t _{D(off)}		-	31	-	ns
Turn-Off Fall time	t _f		-	37	-	ns
Reverse Recovery Time	t _{RR}	V _{DD} = 20V, dI _S /dt = 100A/s, I _S = 50A	-	76	-	ns
Reverse Recovery Charge	Q _{RR}		-	120	-	nC

Fig.1 Gate-Charge Characteristics

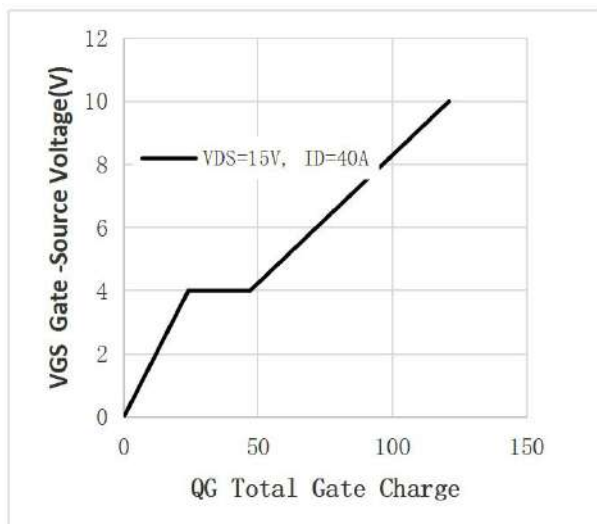


Fig.2 Capacitance Characteristics

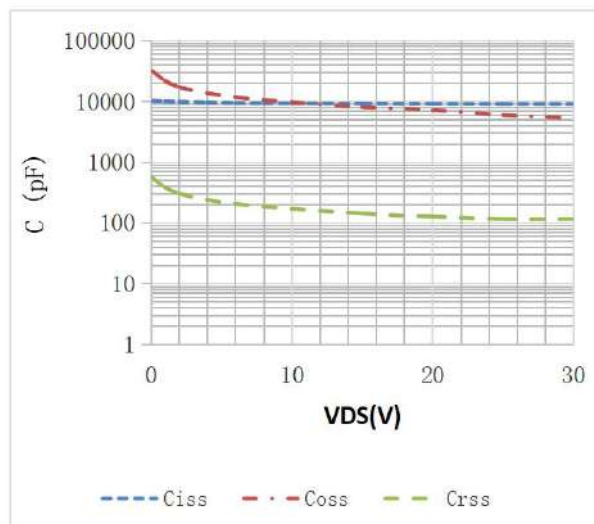


Fig.3 Power Dissipation

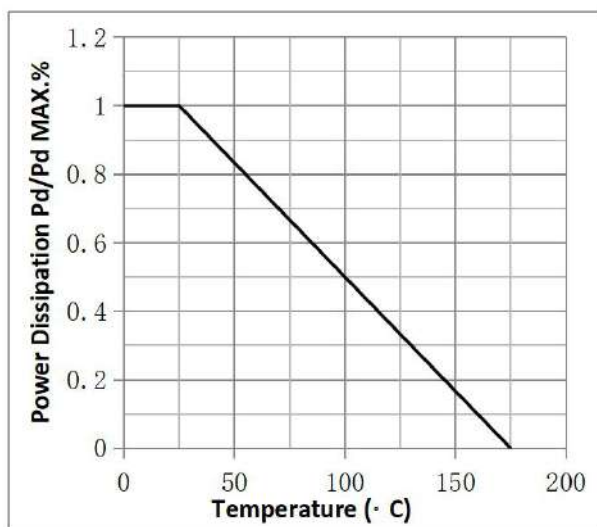


Fig.4 Typical output Characteristics

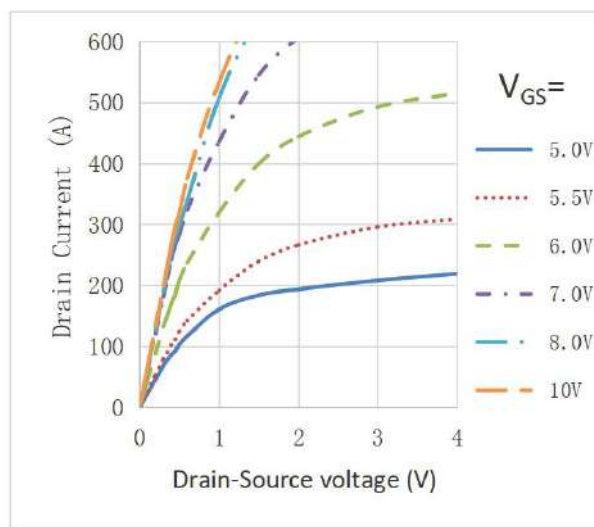


Fig.5 Threshold Voltage V.S Junction Temperature

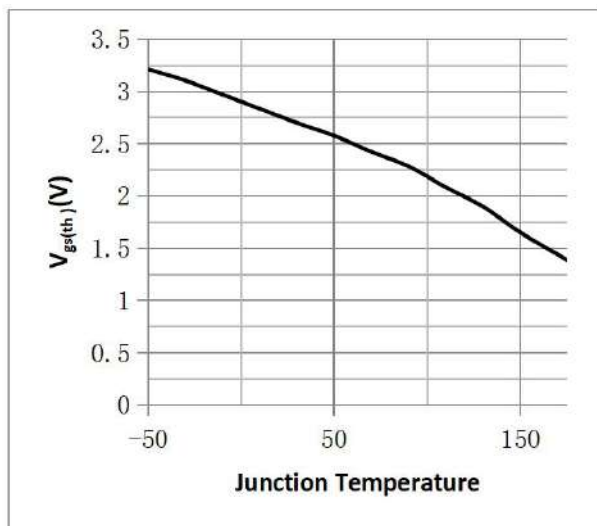


Fig.6 Resistance V.S Drain Current

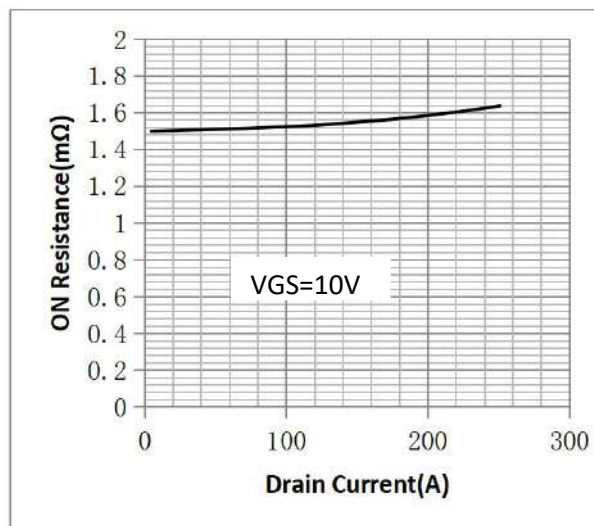


Fig.7 On-Resistance VS Gate Source Voltage

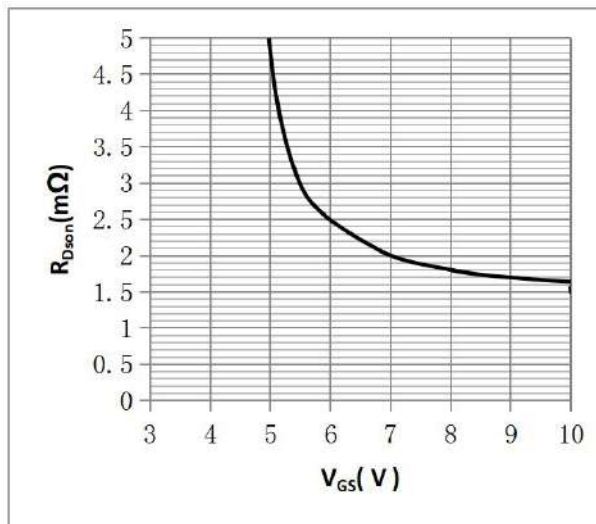


Fig.8 On-Resistance V.S Junction Temperature

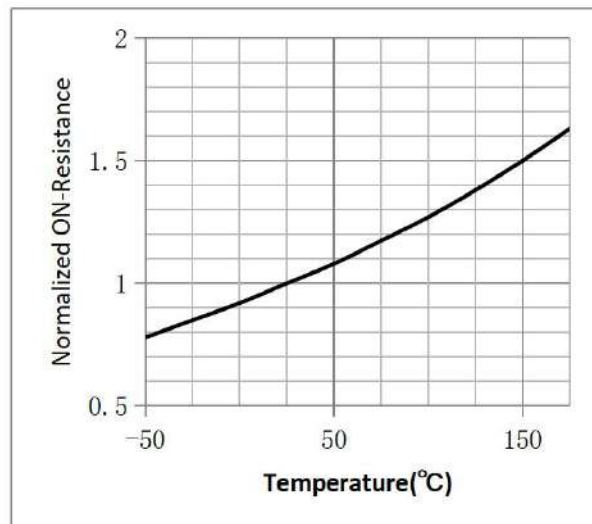


Figure 9. Diode Forward Voltage vs. Current

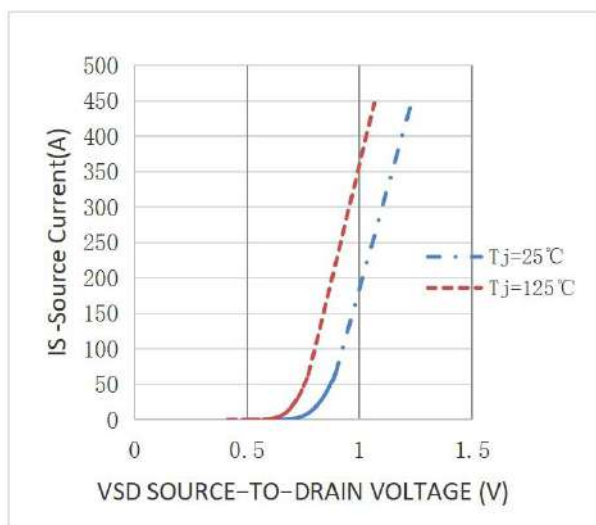


Figure 10. Transfer Characteristics

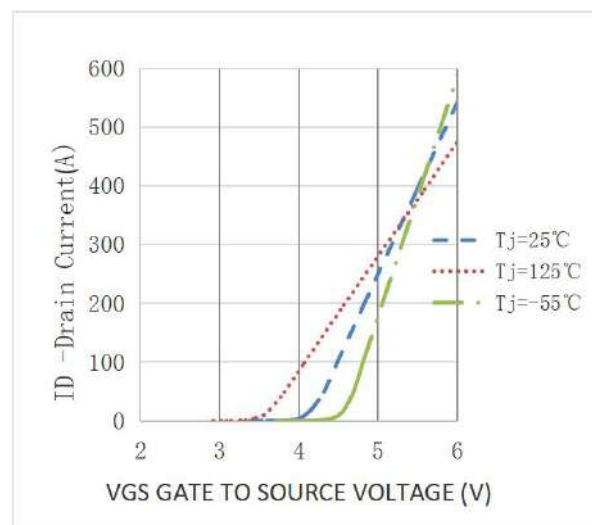


Fig.11 SOA Maximum Safe Operating Area

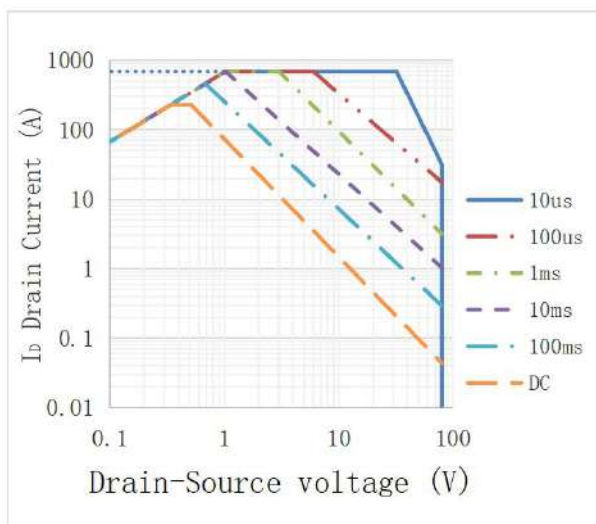
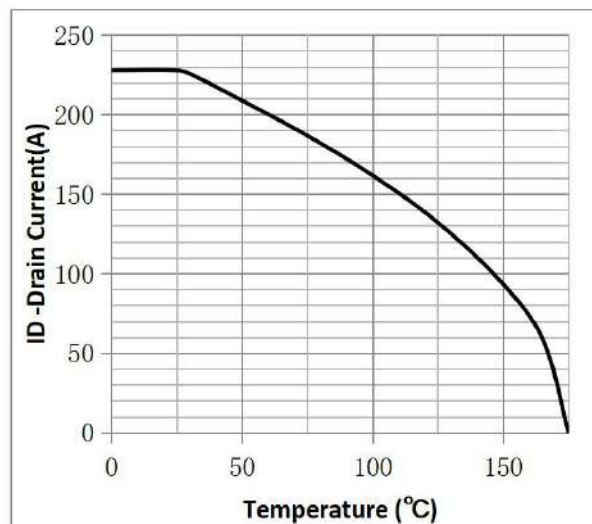
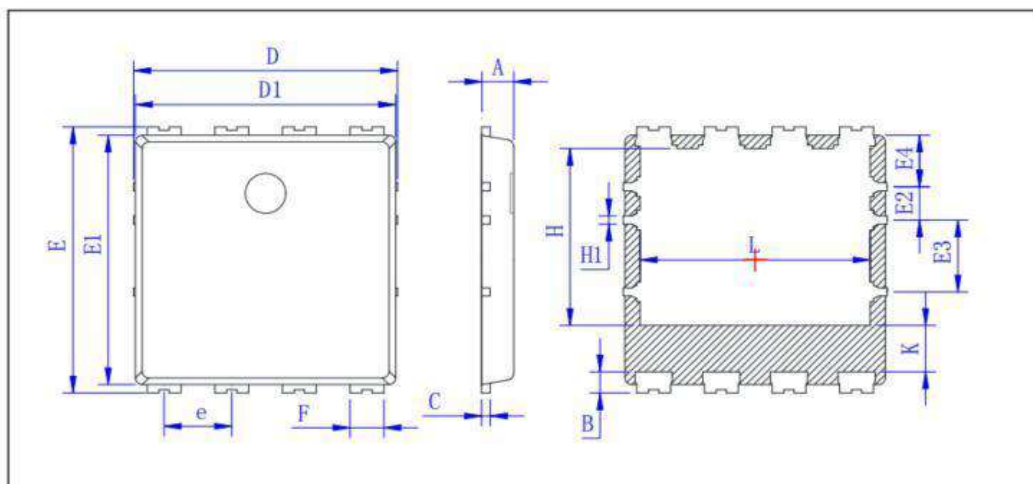


Fig.12 ID vs. Case Temperature^③



●DFN8*8 Package Outline



Symbol	Min	Typ	Max
A	0.90	0.95	1.00
B	0.50	0.60	0.70
C	0.254 TYP		
D	7.70	7.80	7.90
D1	7.60	7.70	7.80
E	7.90	8.00	8.10
E1	7.40	7.50	7.60
E2	0.90	1.00	1.10
E3	2.06	2.16	2.26
E4	1.45	1.55	1.65
e	2.0 TYP		
F	1.00 TYP		
H	5.15	5.30	5.40
H1	0.20	0.25	0.35
L	6.60	6.80	6.90
K	1.20		