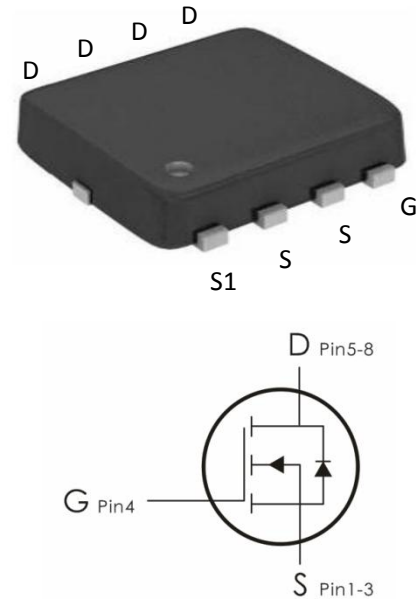


Description:

This N-Channel MOSFET uses advanced trench technology to minimize on-state resistance, provide superior switching performance, and withstand high energy pulse in the avalanche and commutation mode. These devices are well suited for high efficiency fast switching applications.

Features:

- 1) $V_{DS}=60V, I_D=35A, R_{DS(ON)} < 15m\Omega @ V_{GS}=10V$
- 2) Improved dv/dt capability
- 3) Fast switching
- 4) 100% EAS Guaranteed
- 5) Green Device Available.



Package Marking and Ordering Information:

Part NO.	Marking	Package	Packing
ZE015NG	E015N	DFN3*3-8	5000 pcs/Reel

Absolute Maximum Ratings: ($T_c=25^\circ C$ unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Continuous Drain Current-Continuous- $T_c=25^\circ C$	35	A
	Continuous Drain Current-Continuous- $T_c=100^\circ C$	22.8	A
I_{DM}	Drain Current – Pulsed	140	A
EAS	Single Pulse Avalanche Energy	64	mJ
P_D	Power Dissipation - $T_c=25$	41	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150	$^\circ C$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance, Junction to Case	4.8	$^\circ C/W$

Electrical Characteristics: ($T_C=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV _{DSS}	Drain-Sourctce Breakdown Voltage	V _{GS} =0V, I _D =250 μ A	60	---	---	V
I _{DSS}	Drain-Source Leakage Current	V _{GS} =0V, V _{DS} =60V	---	---	1	μ A
I _{GSS}	Gate-Source Leakage Current	V _{GS} = ± 20V, V _{DS} =0A	---	---	± 100	nA
On Characteristics						
V _{GS(th)}	GATE-Source Threshold Voltage	V _{GS} =V _{DS} , I _D =250 μ A	1	1.6	2.5	V
R _{DS(ON)}	Drain-Source On Resistance	V _{GS} =10V, I _D =30A	---	11	15	m Ω
		V _{GS} =4.5V, I _D =20A	---	14	20	
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, f=1MHz	---	2890	---	pF
C _{oss}	Output Capacitance		---	138	---	
C _{rss}	Reverse Transfer Capacitance		---	123	---	
Switching Characteristics						
t _{d(on)}	Turn-On Delay Time	V _{DD} =25V , V _{GS} =10V , R _G =1.8 Ω , I _D =30A	---	7	---	ns
t _r	Rise Time		---	5	---	ns
t _{d(off)}	Turn-Off Delay Time		---	28	---	ns
t _f	Fall Time		---	5.3	---	ns
Q _g	Total Gate Charge	V _{DS} =30V , V _{GS} =10V , I _D =30A	---	48	---	nC
Q _{gs}	Gate-Source Charge		---	6	---	nC
Q _{gd}	Gate-Drain “Miller” Charge		---	14	---	nC
Drain-Source Diode Characteristics						
I _S	Continuous Source Current	VG=VD=0V, Force Current	---	---	35	A
I _{SM}	Pulsed Source Current		---	---	140	A
V _{SD}	Forward on voltage	I _S =30A, V _{GS} =0V	---	---	1.0	V
T _{rr}	Body Diode Reverse Recovery Time	IF=30A, dI/dt=100A/μs	---	28	---	nS
Q _r	Body Diode Reverse Recovery Charge		---	40	---	nC

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. EAS condition : $T_J=25^{\circ}\text{C}$, $V_{DD}=30\text{V}$, $V_G=10\text{V}$, $L=0.5\text{mH}$, $R_g=25\Omega$, $I_{AS}=16\text{A}$
3. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 0.5\%$

Typical Characteristics: ($T_C=25^{\circ}\text{C}$ unless otherwise noted)

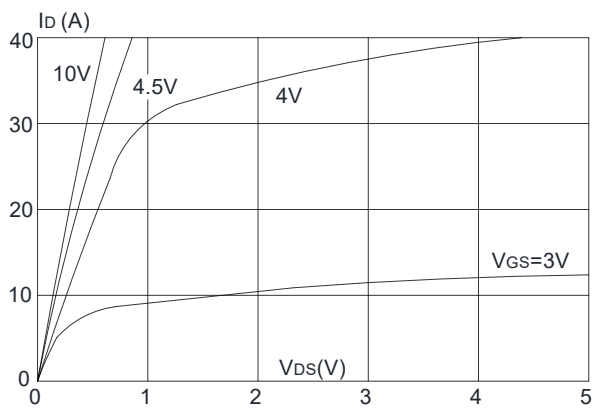


Figure1: Output Characteristics

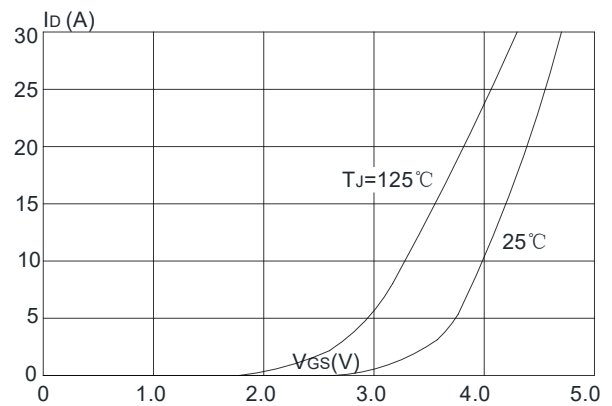


Figure 2: Typical Transfer Characteristics

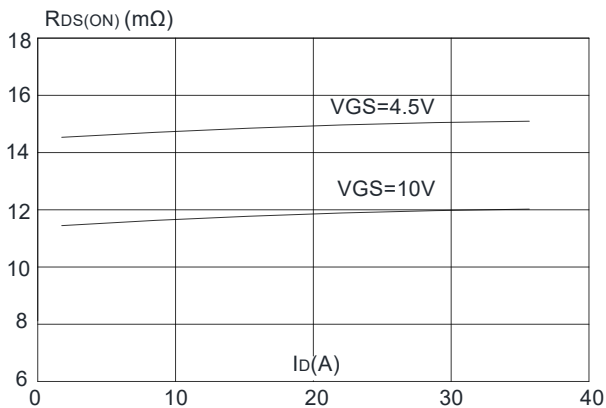


Figure 3: On-resistance vs. Drain Current

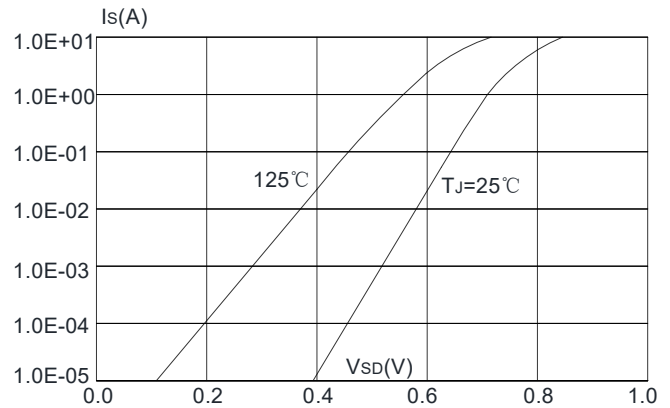


Figure 4: Body Diode Characteristics

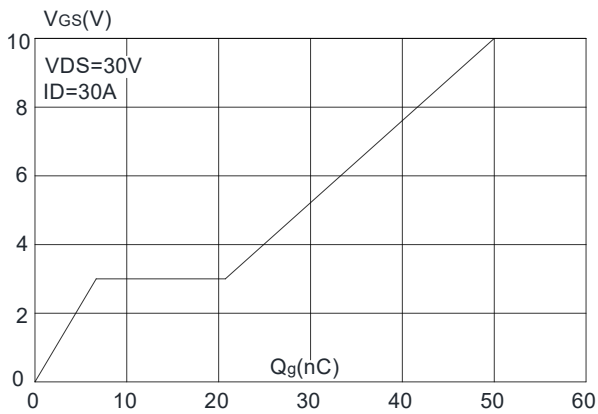


Figure 5: Gate Charge Characteristics

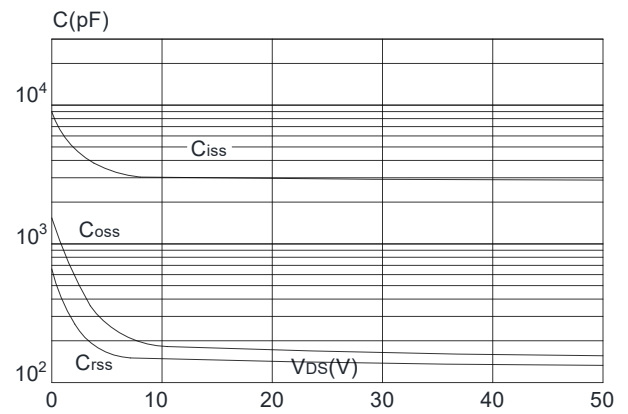


Figure 6: Capacitance Characteristics

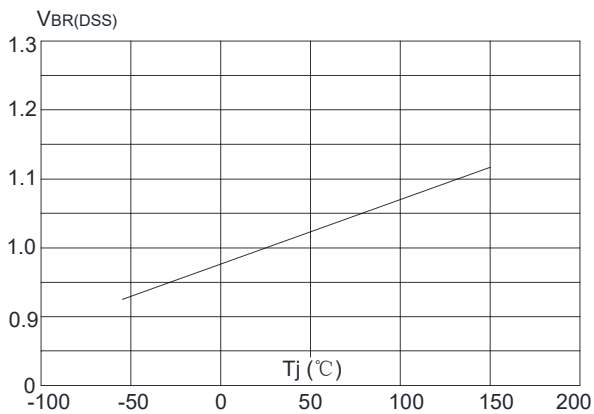


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

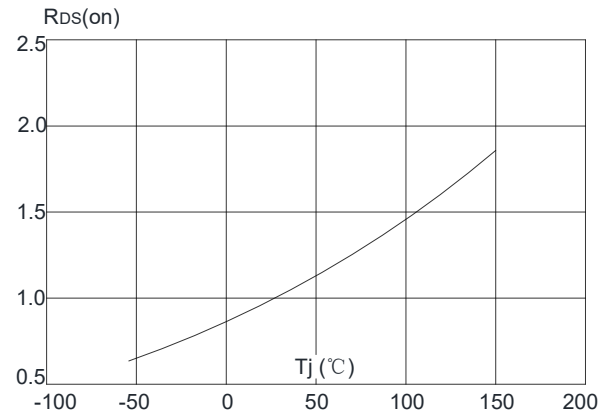


Figure 8: Normalized on Resistance vs. Junction Temperature

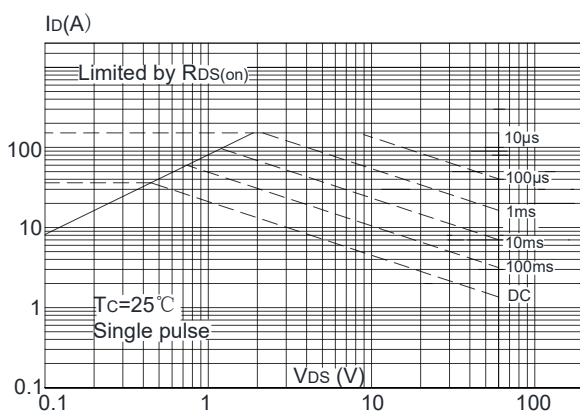


Figure 9: Maximum Safe Operating Area

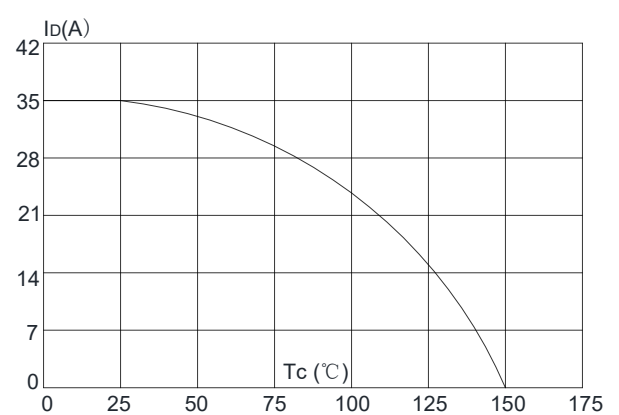


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

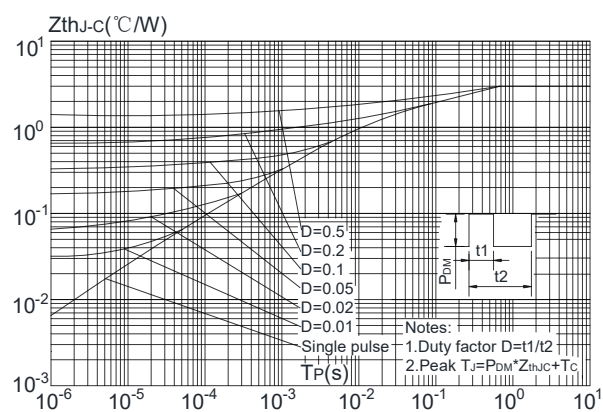
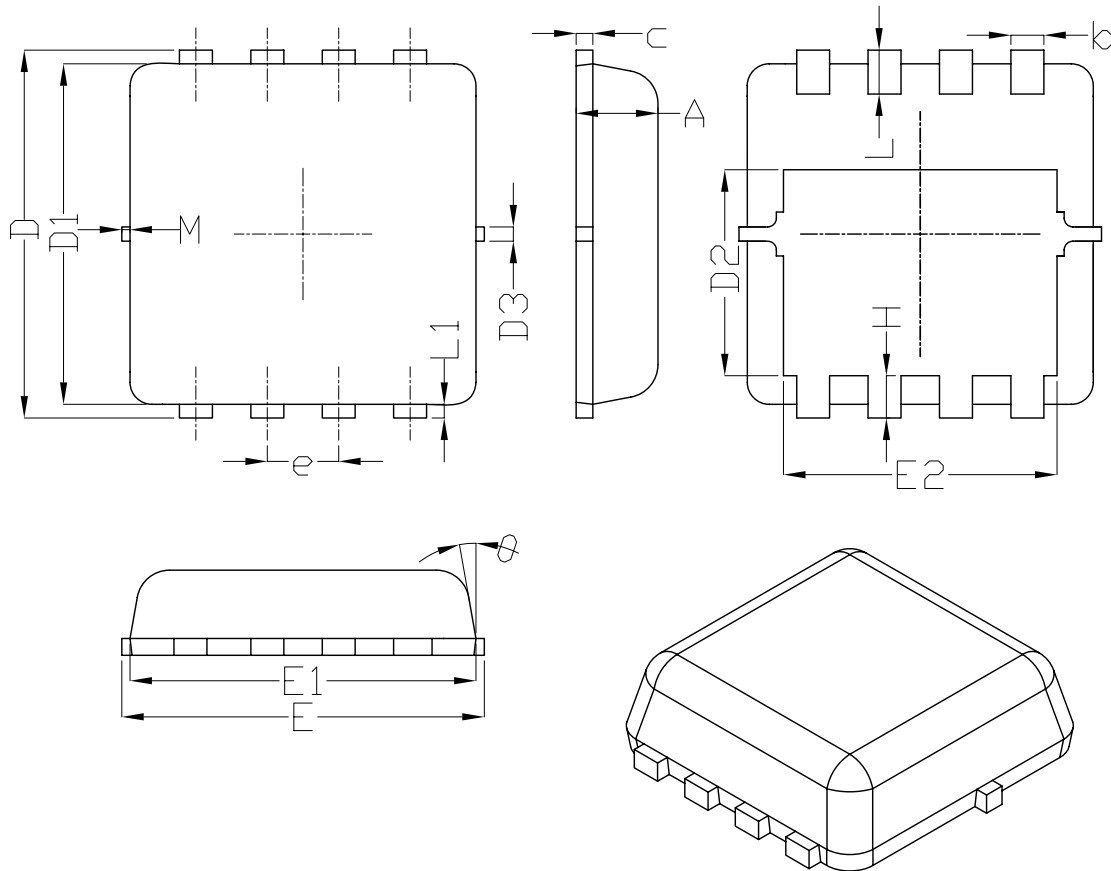
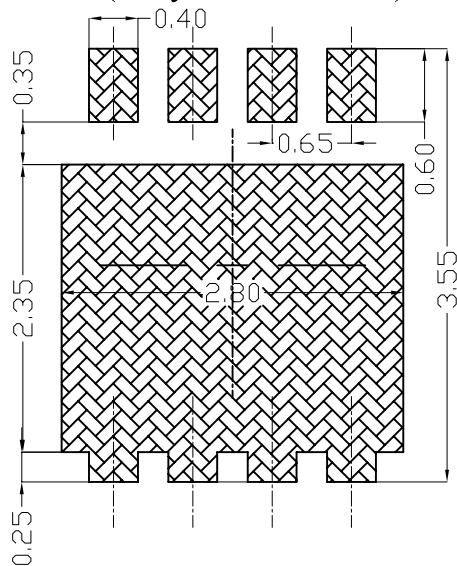


Figure.11: Maximum Effective
Transient Thermal Impedance, Junction-to-Case

DFN3X3-8Package Outline Data



**Land Pattern
(Only for Reference)**



UNIT: mm

SYMBOL	DIMENSIONAL REQMTS		
	MIN	NOM	MAX
A	0.70	0.75	0.80
b	0.25	0.30	0.35
c	0.10	0.15	0.25
D	3.25	3.35	3.45
D1	3.00	3.10	3.20
D2	1.78	1.88	1.98
D3	---	0.13	---
E	3.20	3.30	3.40
E1	3.00	3.15	3.20
E2	2.39	2.49	2.59
e	0.65BSC		
H	0.30	0.39	0.50
L	0.30	0.40	0.50
L1	---	0.13	---
θ	---	10°	12°
M	*	*	0.15

* Not specified

Marking Information:

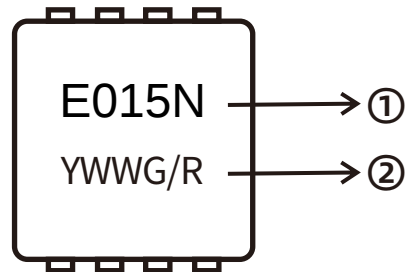
①. Part NO.

②. Date Code(YWWG / R)

Y : Year Code , last digit of the year

WW : Week Code(01-53)

G/R : G(Green) /R(Lead Free)



Previous Version

Version	Date	Subjects (major changes since last revision)
1.0	2024-5-10	Release of final version

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