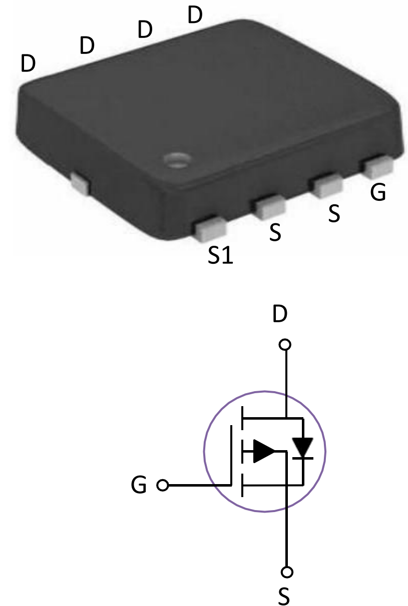
Description:

This P-Channel MOSFET uses advanced trench technology and design to provide excellent $R_{DS(on)}$ with low gate charge.

It can be used in a wide variety of applications.



Features:

1) V_{DS}=-30V,I_D=-50A,$R_{DS(ON)}$<7.5mΩ @V_{GS}=-10V （Typ：6m ）
2) Low gate charge.
3) Green device available.
4) Advanced high cell denity trench technology for ultra low $R_{DS(ON)}$.
5) Excellent package for good heat dissipation.

Package Marking and Ordering Information:

Part NO.	Marking	Package	Packing
DOZ50P03	50P03	DFN3*3-8	5000 pcs/Reel

Absolute Maximum Ratings: (T_C=25℃ unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	-30	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Continuous Drain Curren	-50	A
	Continuous Drain Current-T_C=100℃	-30	
I_{DM}	Pulsed Drain Current[1]	-170	
P_D	Power Dissipation	55	W
E_{AS}	Single pulse avalanche energy [2]	230	mJ
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55-+150	℃

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance,Junction to Case	2.27	℃/W
$R_{\theta JA}$	Thermal Resistance,Junction to Ambient	62	℃/W

Electrical Characteristics： (T_C=25℃ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV_{DSS}	Drain-Sourtce Breakdown Voltage	V_{GS}=0V,I_D=250 μ A	-30	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{GS}=0V, V_{DS}=-30V	---	---	-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	-1.5	-2	V
$R_{DS(ON)}$	Drain-Source On Resistance	V_{GS}=-10V,I_D=-20A	---	6	7.5	m Ω
		V_{GS}=-4.5V,I_D=-20A	---	8	11	m Ω
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=-15V, V_{GS}=0V, f=1MHz	---	3150	---	pF
C_{oss}	Output Capacitance		---	358	--	
C_{rss}	Reverse Transfer Capacitance		---	342	---	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	V_{DS}=-15V, I_D=-20A, R_L=3 Ω ,V_{GS}=-10V	---	10	---	ns
t_r	Rise Time		---	47	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	75	---	ns
t_f	Fall Time		---	44	---	ns
Q_g	Total Gate Charge	V_{GS}=-10V, V_{DS}=-15V, I_D=-20A	---	84	---	nc
Q_{gs}	Gate-Source Charge		---	13	---	nc
Q_{gd}	Gate-Drain “Miller” Charge		---	15	---	nc
Drain-Source Diode Characteristics						
V_{SD}	Diode Forward Voltage	V_{GS}=0V, I_{SD}=-20A	---	---	-1.2	V
I_S	Continuous Drain Curren	VD=VG=0V	---	---	-50	A
I_{SM}	Pulsed Drain Current		---	---	-170	A

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. EAS condition: T_J =25℃, V_{DD} = -30V, V_G = -10V, R_G =25Ω, L=0.5mH.
3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%

Typical Characteristics： (T_C=25℃ unless otherwise noted)

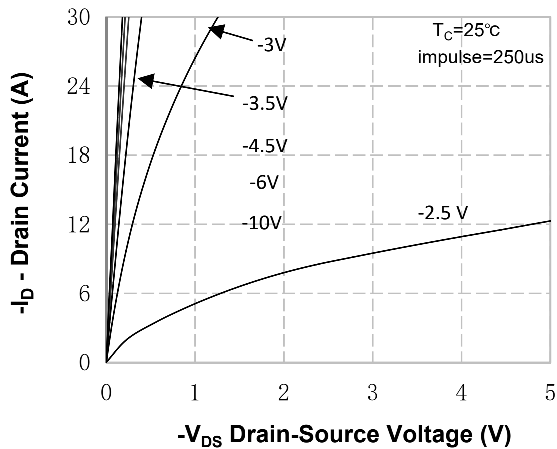


Figure 1. On-Region Characteristics

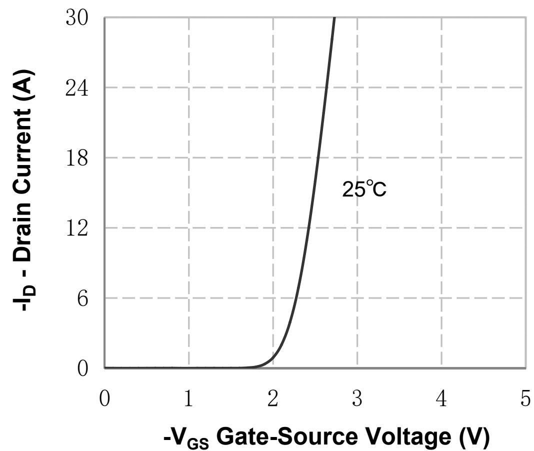


Figure 2. Transfer Characteristics

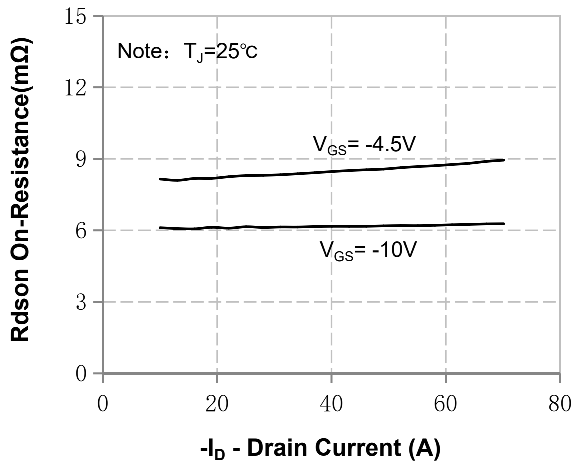


Figure 3. On-Resistance Variation vs Drain Current and Gate Voltage

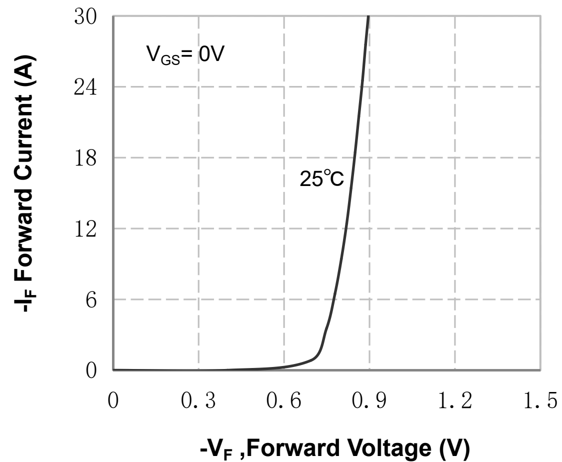


Figure 4. Body Diode Forward Voltage Variation with Source Current

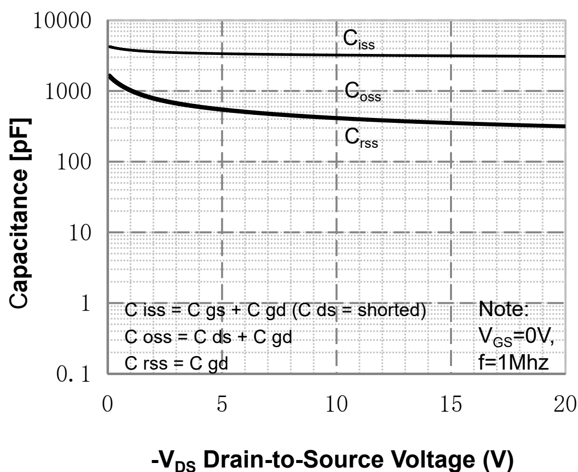


Figure 5. Capacitance Characteristics

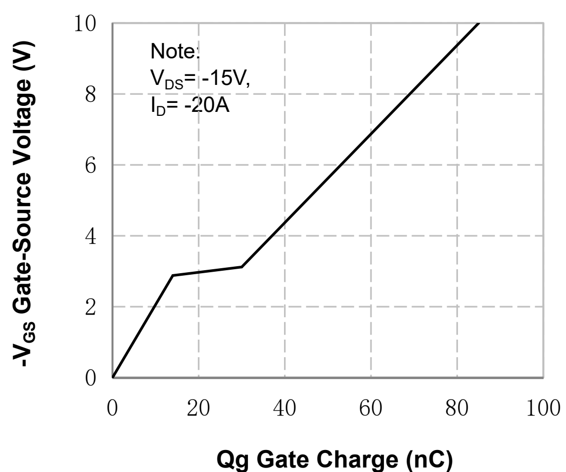


Figure 6. Gate Charge Characteristics

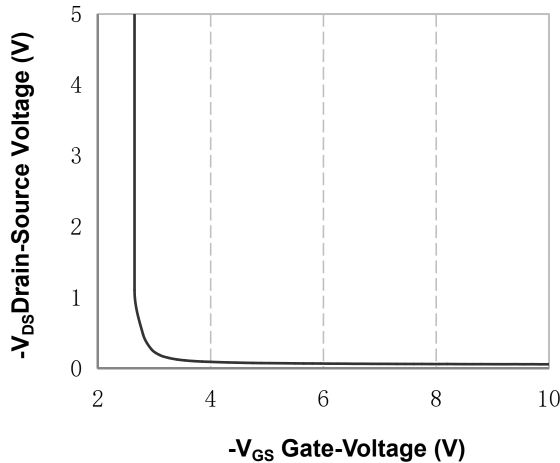


Figure 7. Vds Drain-Source Voltage vs Gate Voltage

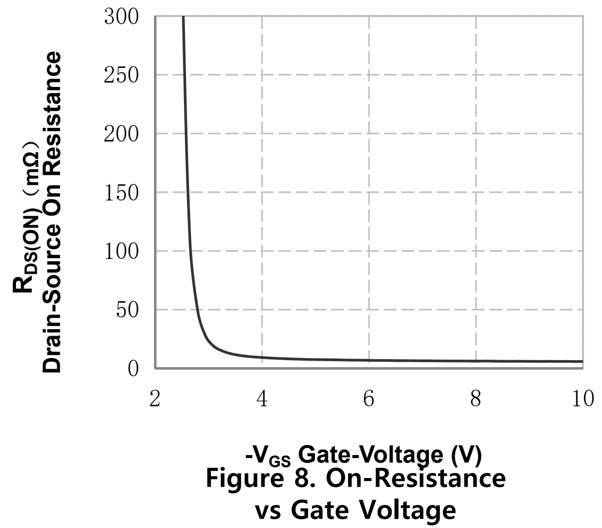


Figure 8. On-Resistance vs Gate Voltage

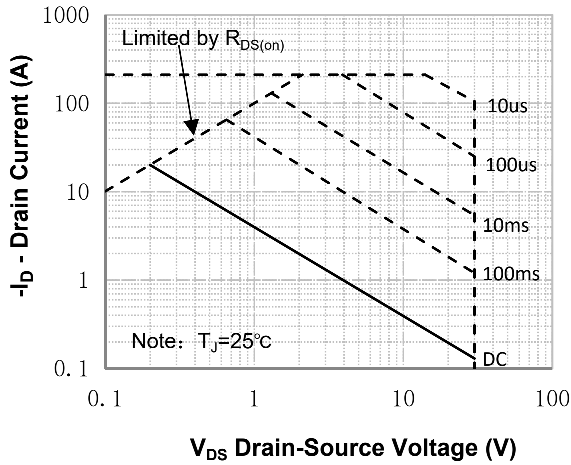


Figure 9. Maximum Safe Operating Area

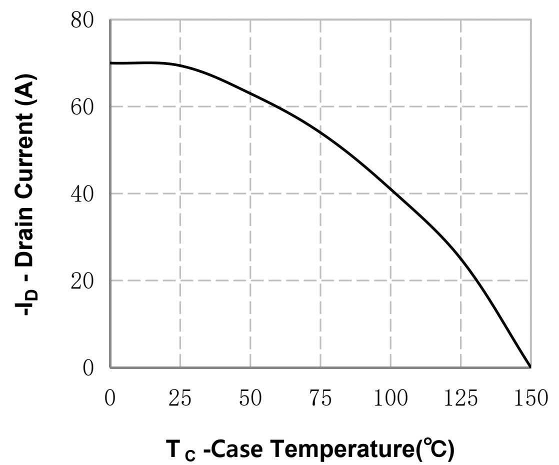


Figure 10. Maximum Continuous Drain Current vs Case Temperature

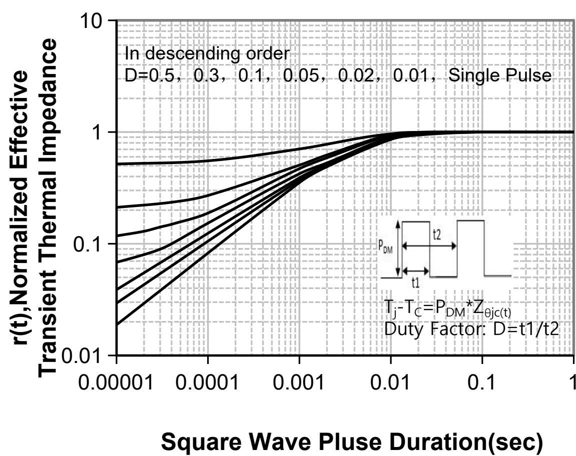
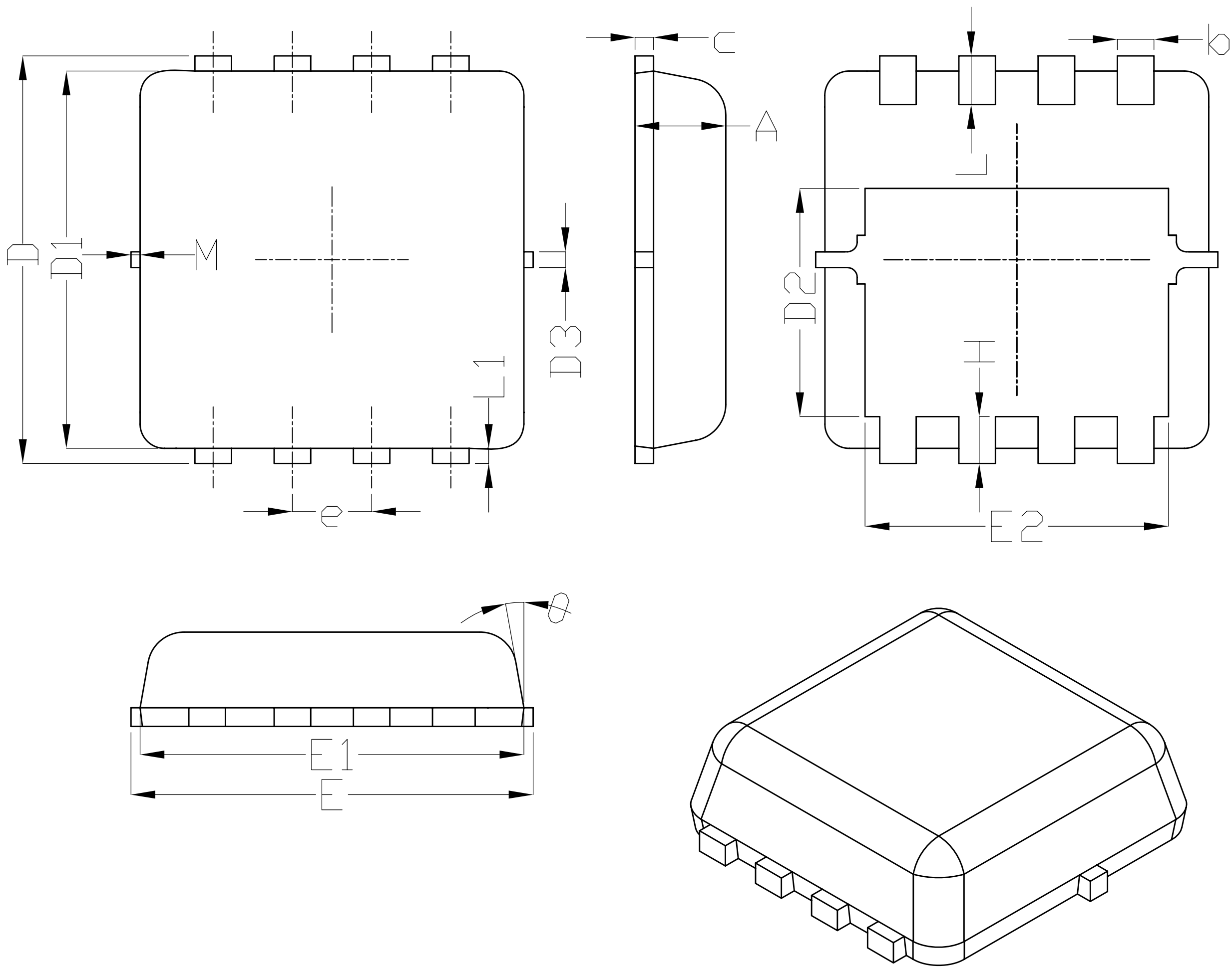
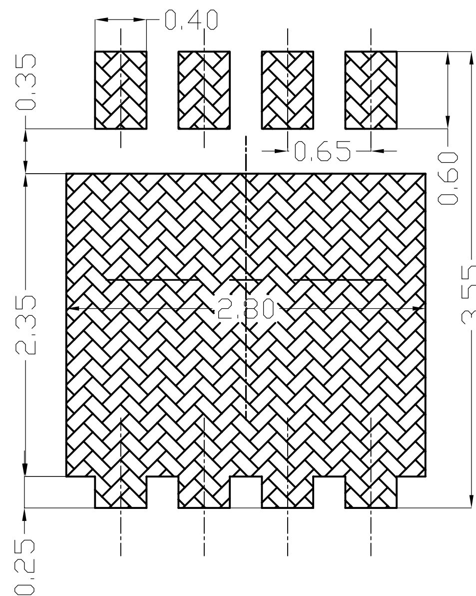


Figure 11. Transient Thermal Response Curve

DFN3X3-8 Package Information：



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			



UNIT：mm

Marking Information：

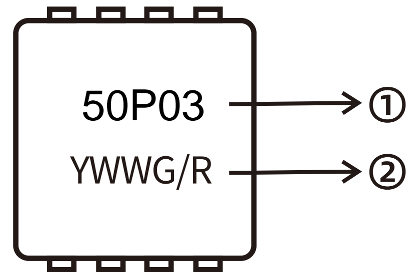
①. Part NO.

②. Date Code(YWWG / R)

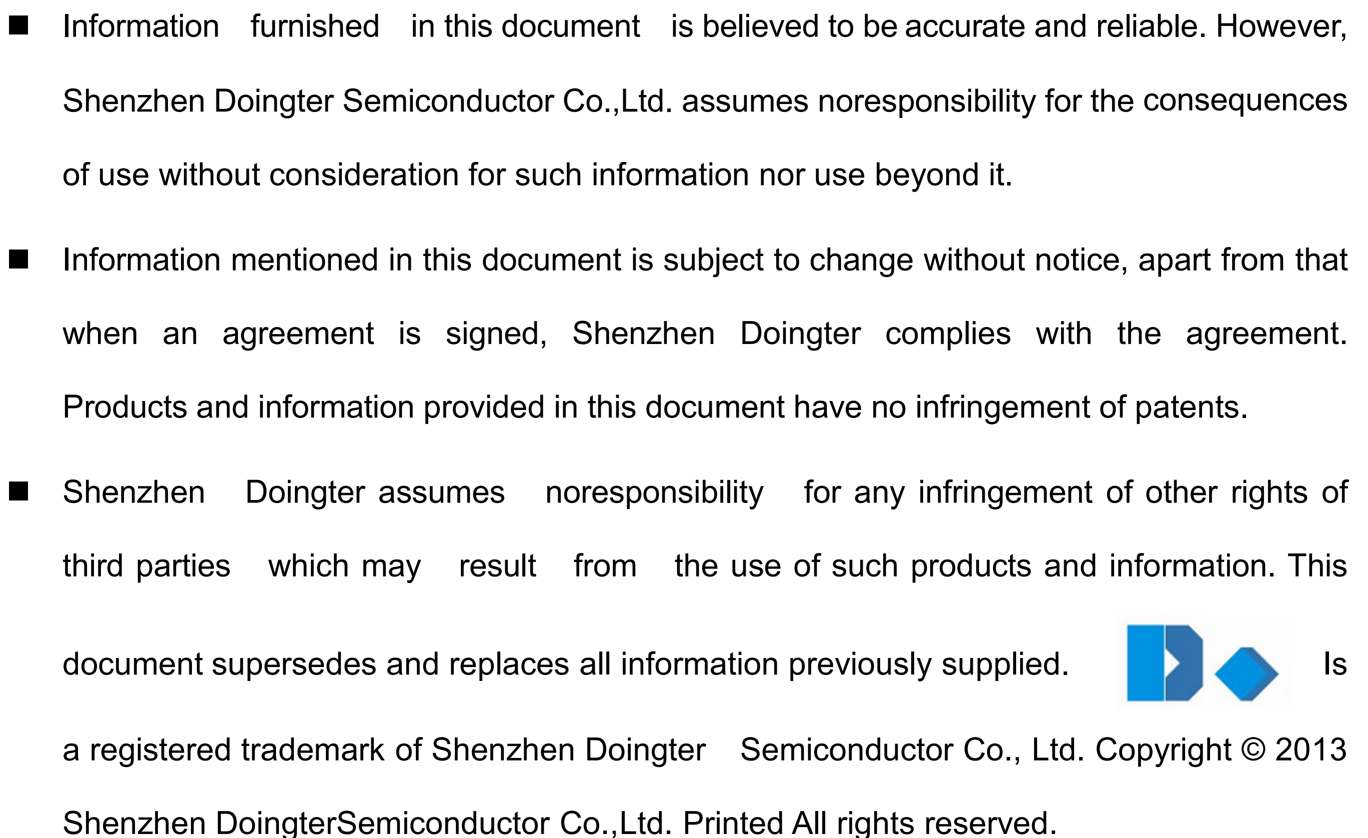
Y：Year Code，last digit of the year

WW：Week Code(01-53)

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



Attention :



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