

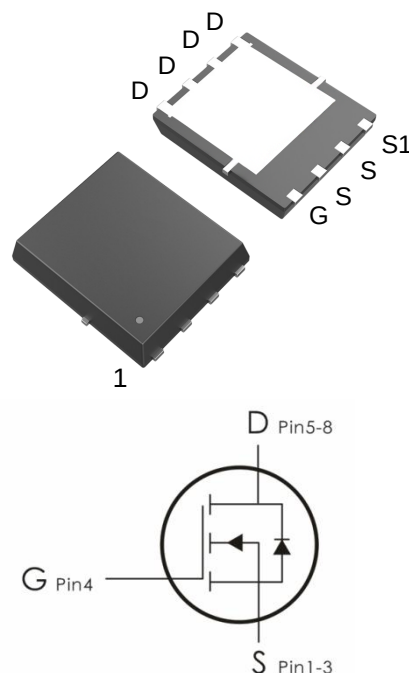
Description:

This N-Channel MOSFET uses advanced super junction 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) $V_{DS}=650V, I_D=11A, R_{DS(ON)} < 380m\Omega @ V_{GS}=10V$ (Typ: $330m\Omega$)
- 2) Low gate charge.
- 3) Green device available.
- 4) Advanced high cell density trench technology for ultra low $R_{DS(ON)}$.
- 5) Excellent package for good heat dissipation.
- 6) MSL3



Package Marking and Ordering Information:

Part NO.	Marking	Package	Packing
NO380DSG	O380DS	DFN5*6-8	5000 pcs/Reel

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

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	650	V
V_{GS}	Gate-Source Voltage	± 30	V
I_D	Continuous Drain Current ¹	11	A
	Continuous Drain Current- $T_C=100^{\circ}C$ ¹	7.7	
I_{DM}	Pulsed Drain Current ²	44	
P_D	Power Dissipation	50	W
E_{AS}	Single pulse avalanche energy ³	320	mJ
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55--+150	$^{\circ}C$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance, Junction to Case	2.5	$^{\circ}C/W$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	62	$^{\circ}C/W$

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

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250 μ A	650	---	---	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{GS} =0V, V _{DS} =650V	---	---	1	μ A
I _{GSS}	Gate-Source Leakage Current	V _{GS} =± 30V, V _{DS} =0A	---	---	± 100	nA
On Characteristics						
V _{GS(th)}	Gate-Source Threshold Voltage	V _{GS} =V _{DS} , I _D =250 μ A	2	---	4	V
R _{DS(ON)}	Drain-Source On Resistance ⁴	V _{GS} =10V, I _D =7A	---	330	380	m Ω
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =50V, V _{GS} =0V, f=100KHz	---	430	---	pF
C _{oss}	Output Capacitance		---	51	--	
C _{rss}	Reverse Transfer Capacitance		---	3.9	---	
Switching Characteristics						
t _{d(on)}	Turn-On Delay Time	V _{DS} =400V, I _D =5A, R _{ENG} =10 Ω ,V _{GS} =15V	---	22	---	ns
t _r	Rise Time		---	12	---	ns
t _{d(off)}	Turn-Off Delay Time		---	37.8	---	ns
t _f	Fall Time		---	13	---	ns
Q _g	Total Gate Charge	V _{GS} =10V, V _{DS} =400V, I _D =5A	---	19	---	nC
Q _{gs}	Gate-Source Charge		---	4.1	---	nC
Q _{gd}	Gate-Drain “Miller” Charge		---	6	---	nC
Drain-Source Diode Characteristics						
V _{SD}	Diode Forward Voltage	I _S =5A	---	---	1.3	V
I _S	Continuous Drain Current	V _D =V _G =0V	---	---	11	A
I _{SM}	Pulsed Drain Current		---	---	44	A
T _{rr}	Reverse Recovery Time	I _S =5A, T _J =25 °C	---	190	---	ns
Q _{rr}	Reverse Recovery Charge	di/dt=100A/us	---	2	---	nC

Notes:

1. Computed continuous current assumes the condition of $T_{j,Max}$ while the actual continuous current depends on the thermal & electro-mechanical application board design
2. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
3. EAS condition : $T_J=25^{\circ}C$, $V_{DD}=325V$, $V_G=10V$, $L=0.5mH$
4. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 0.5\%$

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

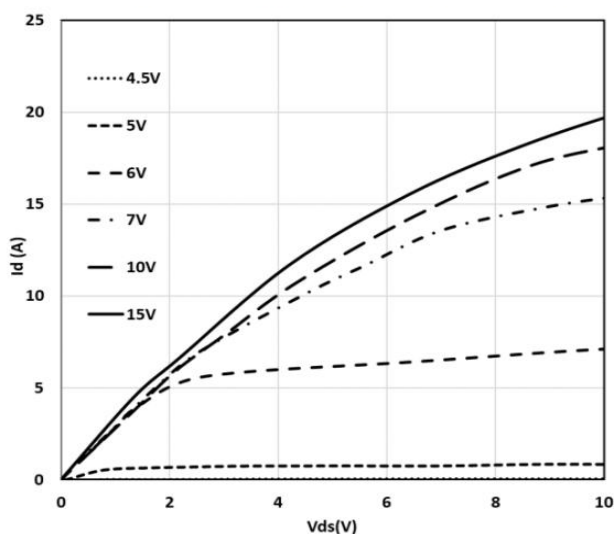


Fig.1 Typical Output characteristics ($25^{\circ}C$)

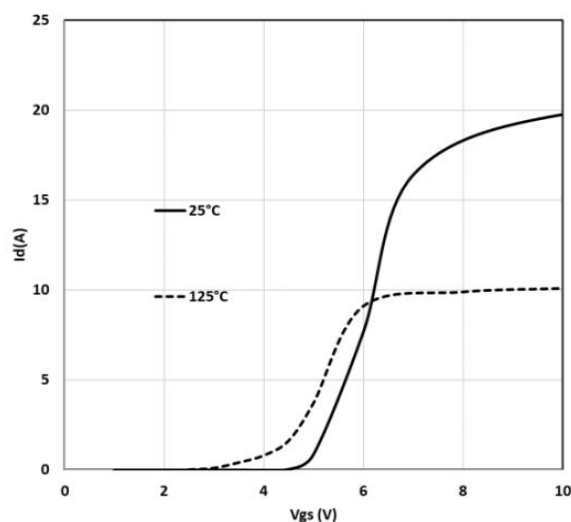


Fig.2 Transfer characteristics

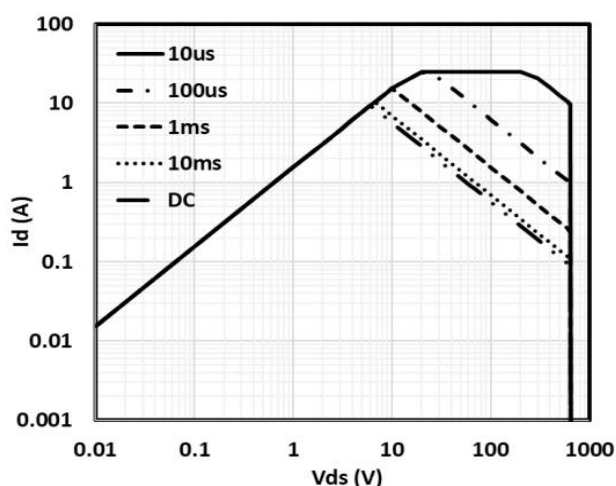


Fig.3 Safe Operating Area

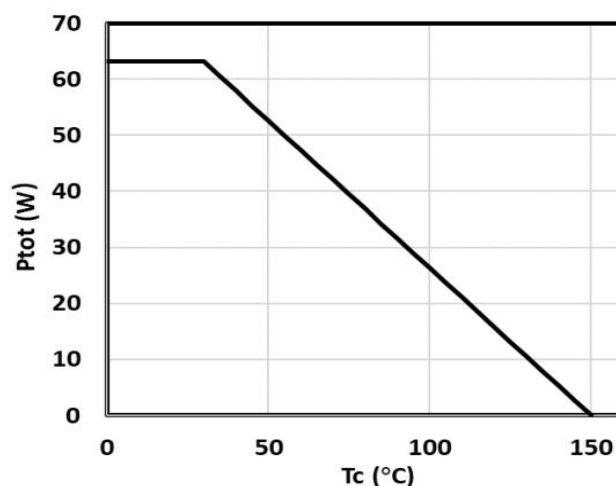


Fig.4 Power dissipation

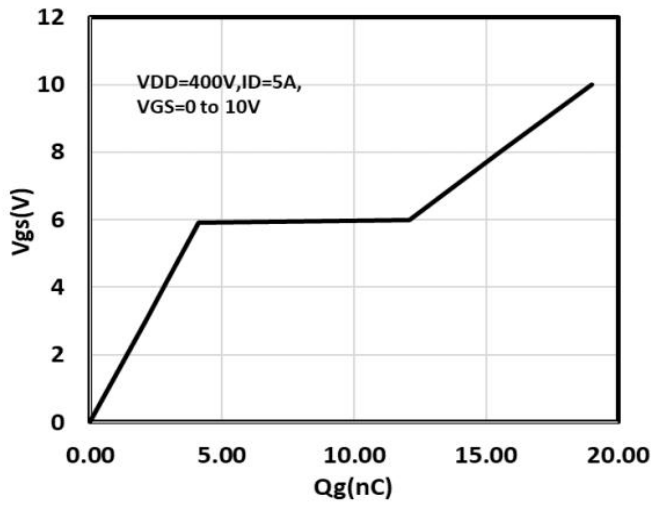


Fig.5 Gate charge

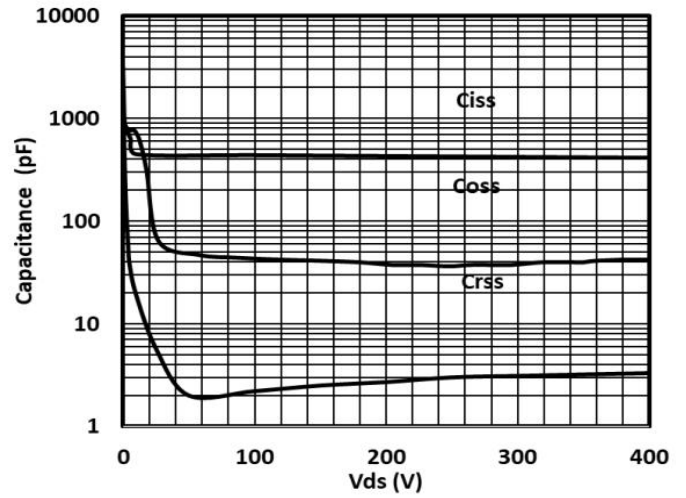


Fig.6 Typical capacitance characteristics

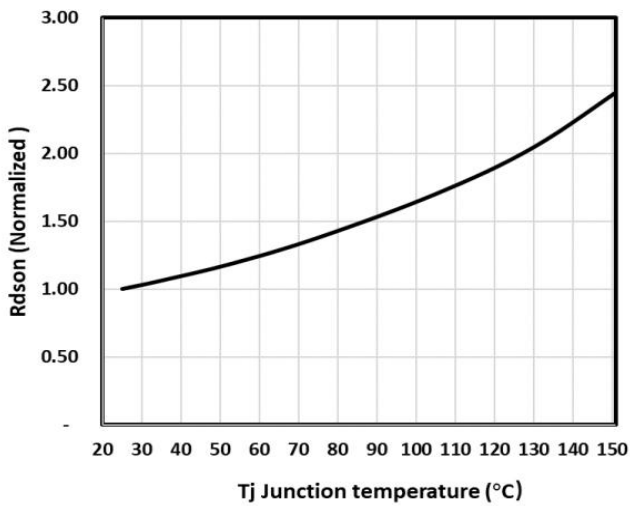


Fig.7 On Resistor vs. Junction temperature

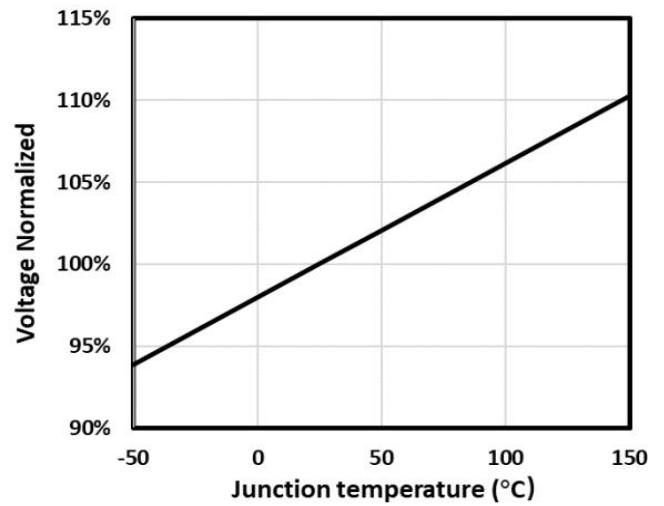
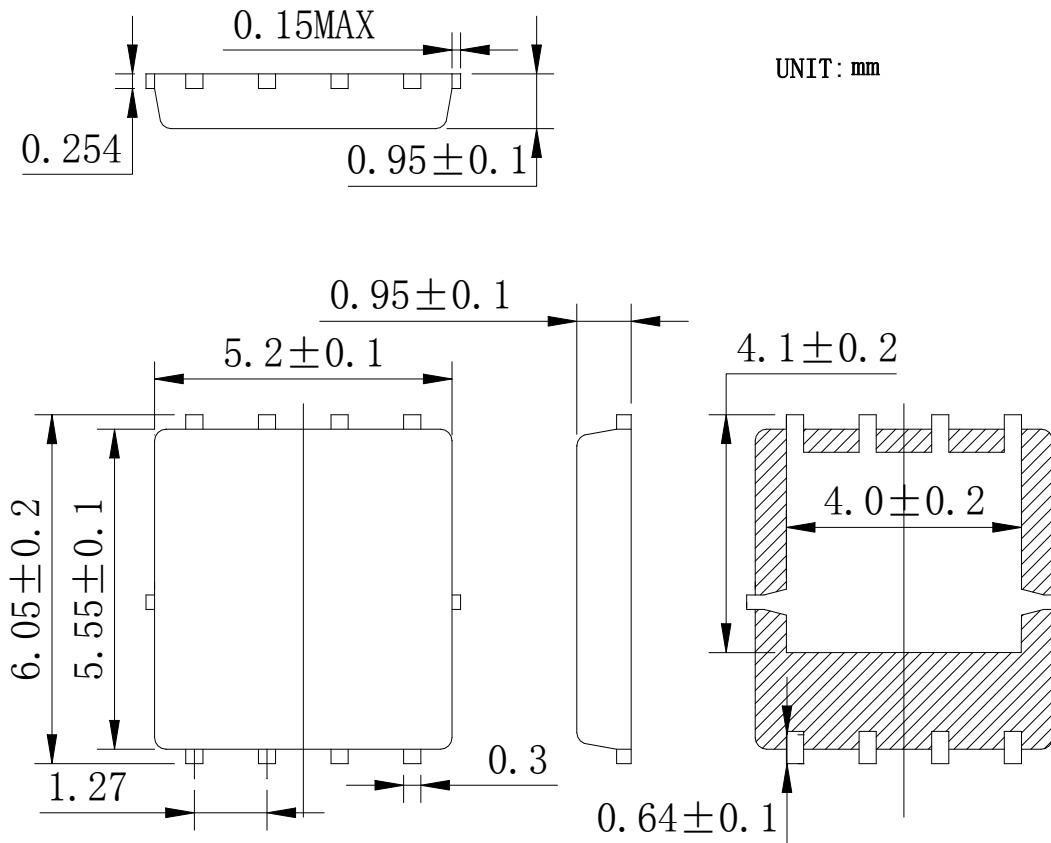


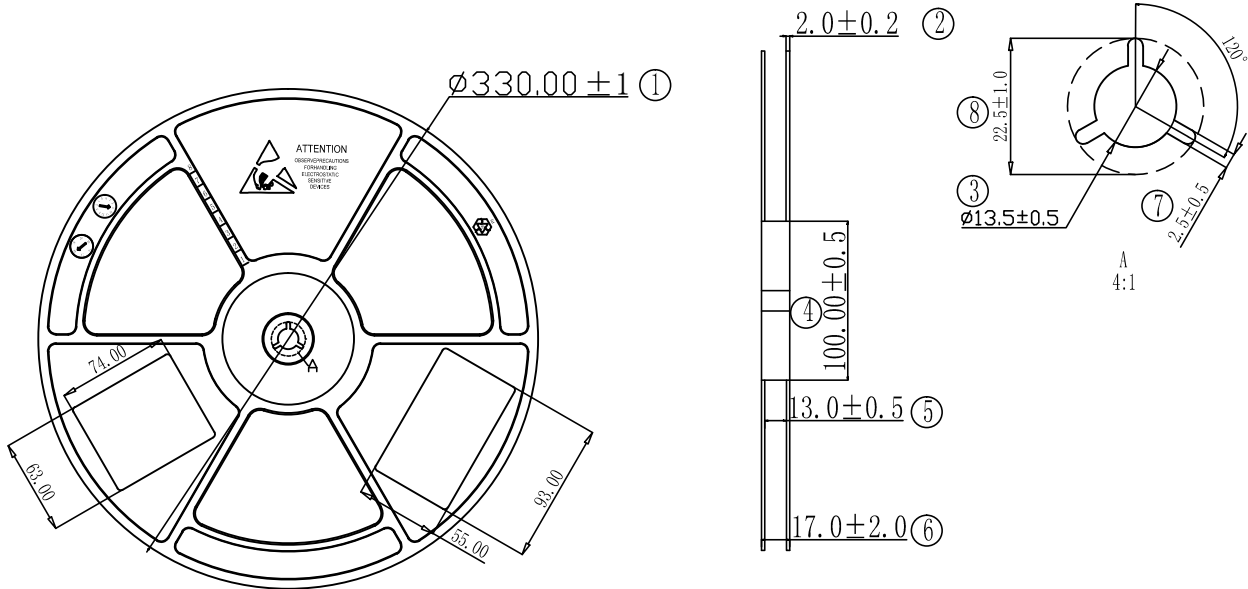
Fig.8 Drain-Source Breakdown Voltage

DFN5×6-8 Package Information:

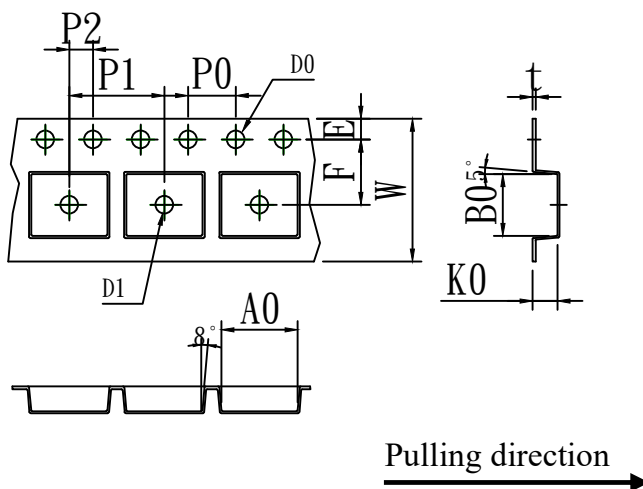


Tape & Reel Information

Dimensions in mm



Symbol	A0	B0	K0	D0	D1	P0	P1	10*P0
Spec	6.15 $\pm$ 0.10	5.40 $\pm$ 0.10	1.30 $\pm$ 0.10	1.55 $\pm$ 0.10	1.55 $\pm$ 0.10	4.00 $\pm$ 0.10	8.00 $\pm$ 0.10	40.00 $\pm$ 0.10
Symbol	W	E	F	P2	t			
Spec	12.00 $\pm$ 0.10	1.75 $\pm$ 0.10	5.50 $\pm$ 0.10	2.00 $\pm$ 0.10	0.20 $\pm$ 0.05			



Marking Information:

①. Doingter LOGO

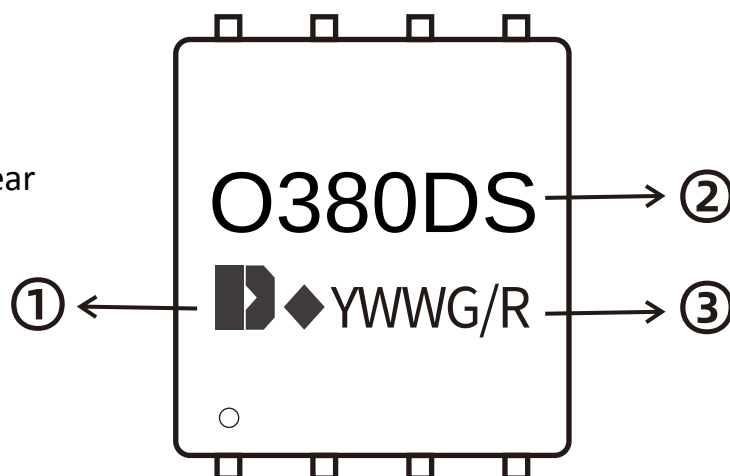
②. Part NO.

③. 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	2025-01-21	Release of final version

Attention :

- Information furnished in this document is believed to be accurate and reliable. However, Shenzhen Doingter Semiconductor Co.,Ltd. assumes noresponsibility for the consequences of use without consideration for such information nor use beyond it.
- Information mentioned in this document is subject to change without notice, apart from that when an agreement is signed, Shenzhen Doingter complies with the agreement. Products and information provided in this document have no infringement of patents.
- Shenzhen Doingter assumes noresponsibility for any infringement of other rights of third parties which may result from the use of such products and information. This document supersedes and replaces all information previously supplied.



Is

a registered trademark of Shenzhen Doingter Semiconductor Co., Ltd. Copyright © 2013

Shenzhen DoingterSemiconductor Co.,Ltd. Printed All rights reserved.