

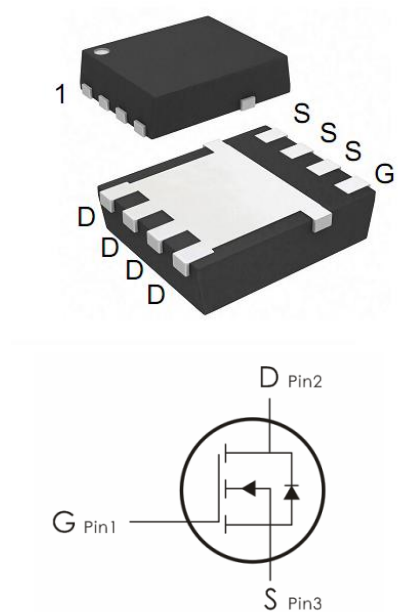
Description:

This N-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) $V_{DS}=30V, I_D=100A, R_{DS(ON)} < 4\text{ m}\Omega @ V_{GS}=10V$
- 2) Low gate charge.
- 3) Green device available.
- 4) Advanced high cell density trench technology for ultra $R_{DS(ON)}$.
- 5) Excellent package for good heat dissipation.



Package Marking and Ordering Information:

Part NO.	Marking	Package	Packing
DON100N03	100N03	DFN5*6-8	5000 pcs/Reel

Absolute Maximum Ratings: ($T_C=25^\circ\text{C}$ 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 Current- $T_C=25^\circ\text{C}^1$	100	A
	Continuous Drain Current- $T_C=100^\circ\text{C}^1$	59	
	Pulsed Drain Current ²	360	
E_{AS}	Single Pulse Avalanche Energy ³	250	mJ
P_D	Power Dissipation, $T_C=25^\circ\text{C}$	83	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +175	$^\circ\text{C}$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance, Junction to Case	1.5	$^\circ\text{C}/\text{W}$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient ³	62.5	

Electrical Characteristics: ($T_c=25^{\circ}\text{C}$ 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	1.6	3	V
R _{DS(ON)}	Drain-Source On Resistance ²	V _{GS} =10V, I _D =40A	---	3	4	m Ω
		V _{GS} =4.5V, I _D =30A	---	4.7	5.5	
G _{FS}	Forward Transconductance	V _{DS} =10V, I _D =15A	---	28	---	S
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1MHz	---	1853	---	pF
C _{oss}	Output Capacitance		---	320	---	
C _{rss}	Reverse Transfer Capacitance		---	240	---	
Switching Characteristics						
t _{d(on)}	Turn-On Delay Time	V _{DD} =15V, I _D =15A, V _{GS} =10V, R _{GEN} =3.3Ω	---	13	---	ns
t _r	Rise Time		---	36	---	ns
t _{d(off)}	Turn-Off Delay Time		---	43	---	ns
t _f	Fall Time		---	16	---	ns
Q _g	Total Gate Charge	V _{GS} =10V, V _{DS} =24V, I _D =20A	---	44	84	nC
Q _{gs}	Gate-Source Charge		---	3.9	---	nC
Q _{gd}	Gate-Drain “Miller” Charge		---	14	---	nC
Drain-Source Diode Characteristics						
V _{SD}	Source-Drain Diode Forward Voltage ²	V _{GS} =0V, I _S =30A	---	---	1.2	V
T _{rr}	Reverse Recovery Time	I _S =10A, V _G =0V	---	16	---	Ns
Q _{rr}	Reverse Recovery Charge	dl/dt=100A/us	---	5	---	nc

Notes:

1. Pulse width limited by max. junction temperature
2. Pulse test
3. Surface mounted on 1 in² copper pad of FR4 board

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

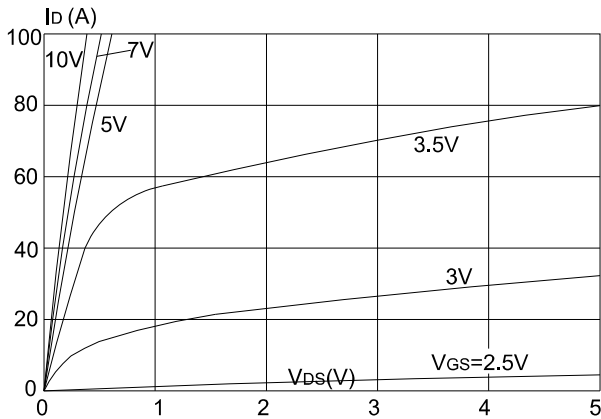


Figure 1: Output Characteristics

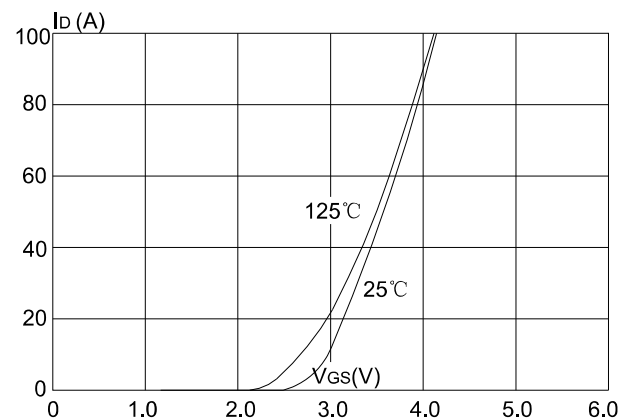


Figure 2: Typical Transfer Characteristics

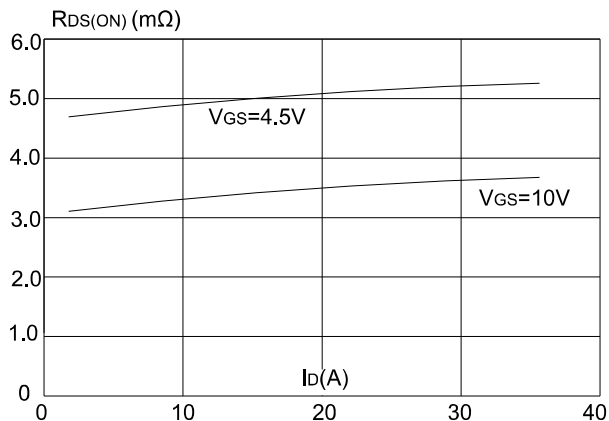


Figure 3: On-resistance vs. Drain Current

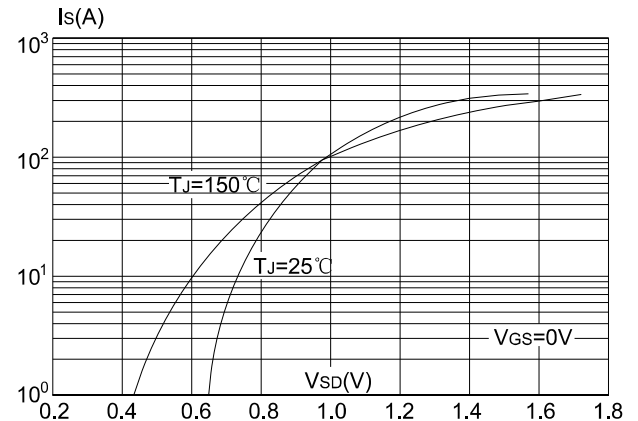


Figure 4: Body Diode Characteristics

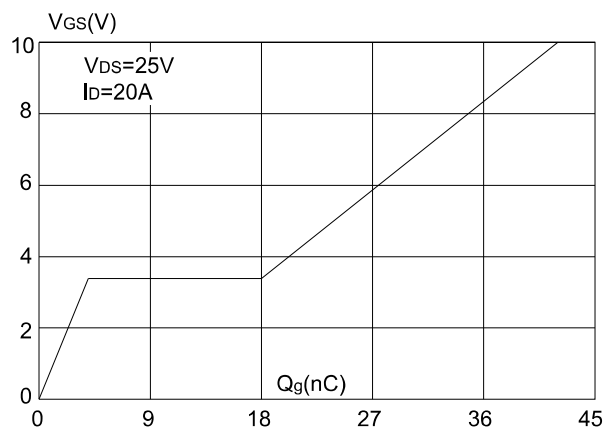


Figure 5: Gate Charge Characteristics

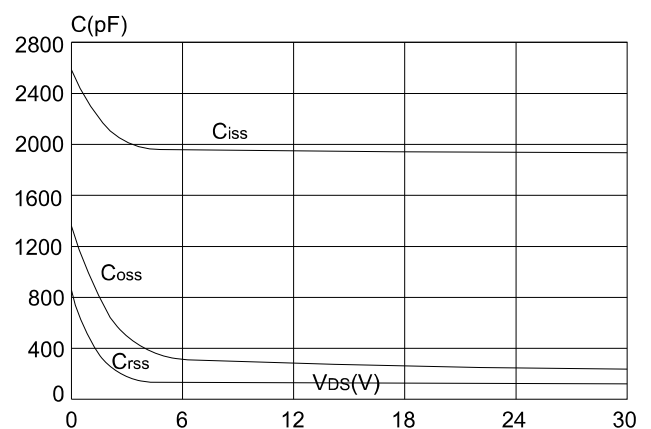


Figure 6: Capacitance Characteristics

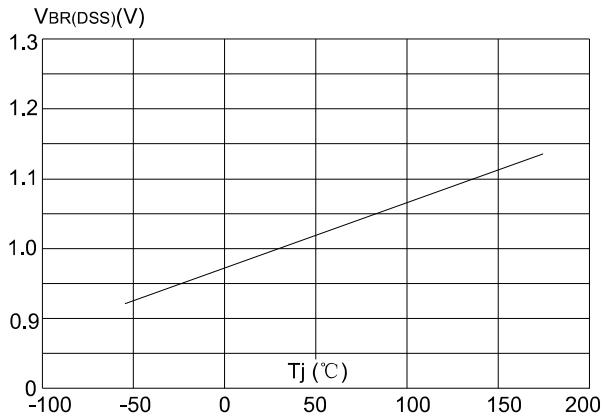


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

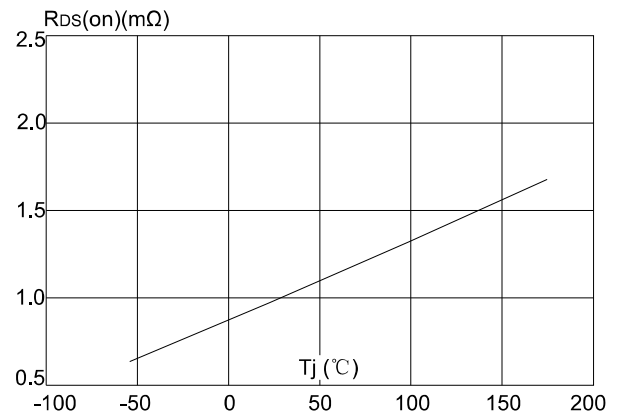


Figure 8: Normalized on Resistance vs. Junction Temperature

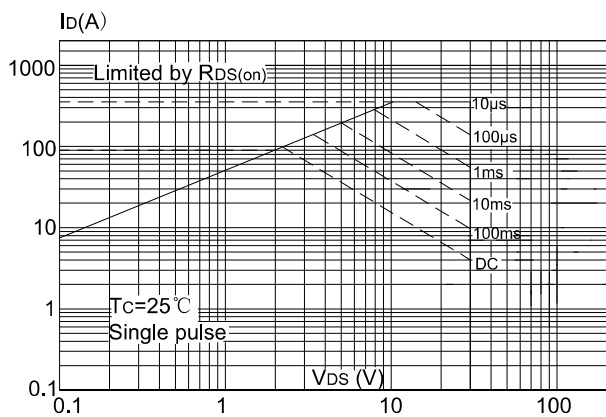


Figure 9: Maximum Safe Operating Area

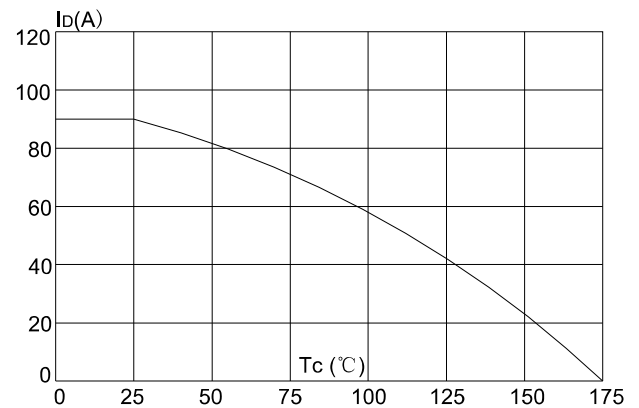


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

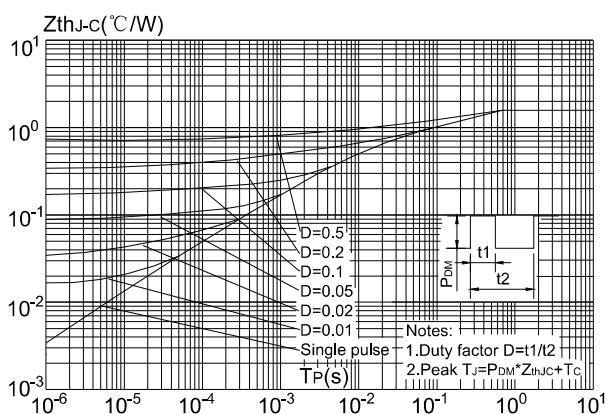
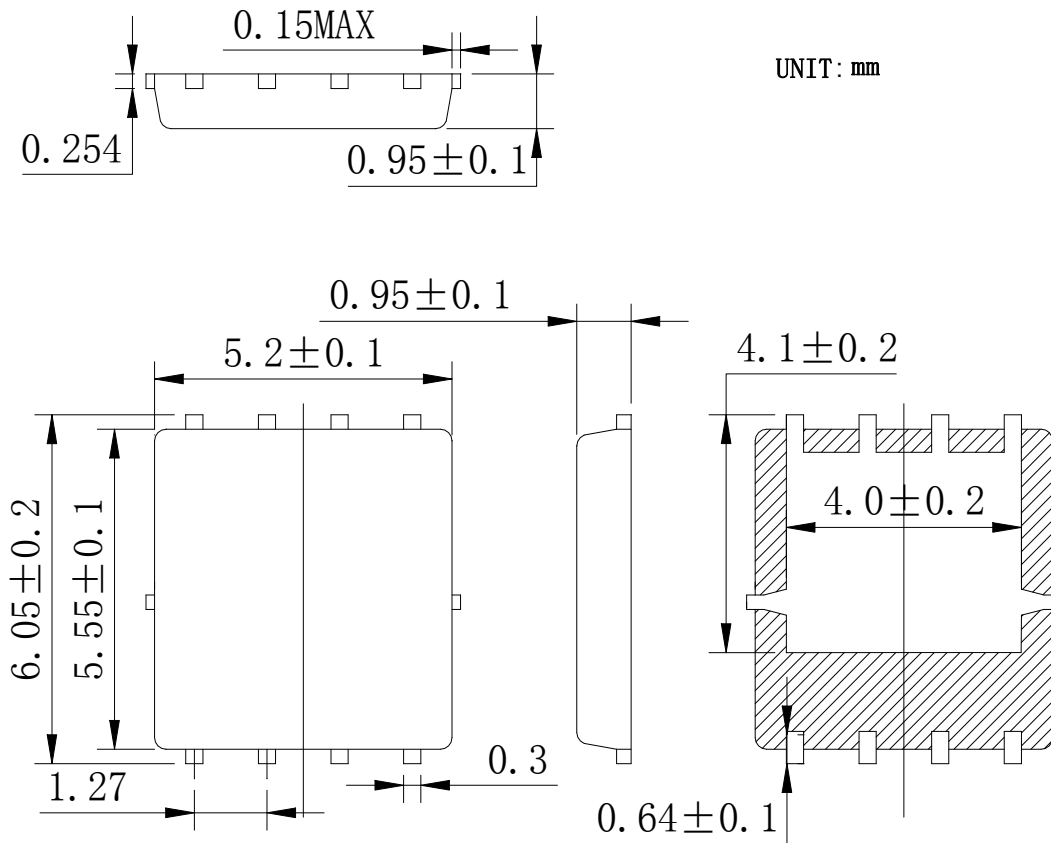


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case

DFN5X6-8 Package Information:



Marking Information:

①. Doingter LOGO

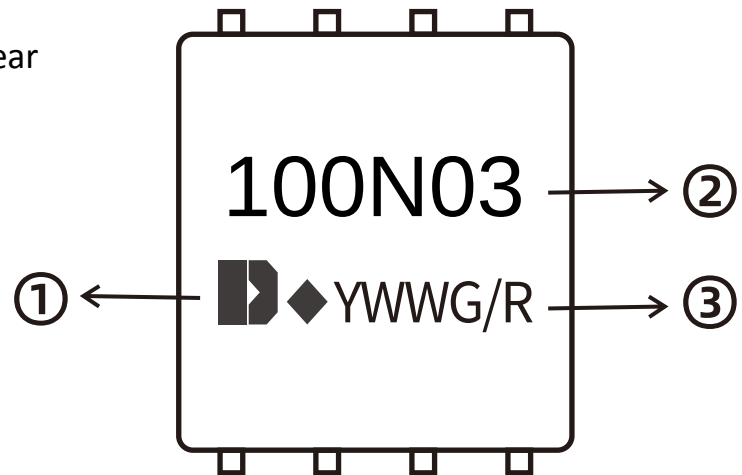
②. Part NO.

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)
2.0	2024-06-08	Release of final version

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