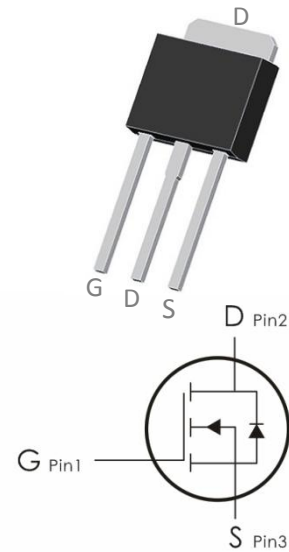


Description:

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) $V_{DS}=30V, I_D=100A, R_{DS(ON)} < 4.2m\Omega @ V_{GS}=10V$
- 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
DOU100N03	100N03	TO- 251	75 pcs/Tube

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, $T_C=25^\circ\text{C}^4$	90	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	2.5	$^\circ\text{C}/\text{W}$
$R_{\theta JA}$	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} =24V	---	---	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	---	3	V
R _{DS(ON)}	Drain-Source On Resistance ²	V _{GS} =10V, I _D =40A	---	3.5	4.2	m Ω
		V _{GS} =4.5V, I _D =30A	---	4.8	6	
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	---	1950	2350	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	---	42	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
trr	Reverse Recovery Time	I _S =10A , V _{GS} =0V, dI/dt=100A	---	16	---	ns
qrr	Reverse Recovery Charge		---	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)

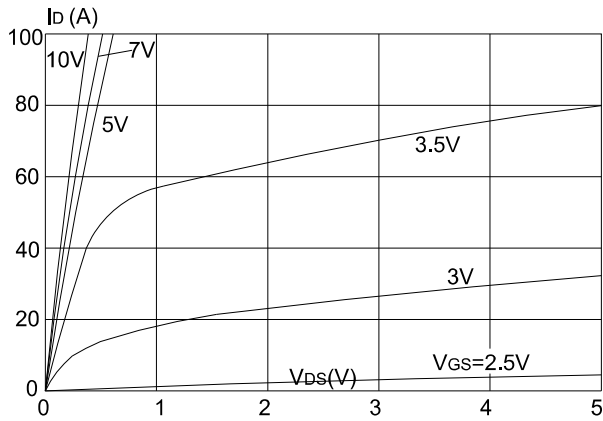


Figure 1: Output Characteristics

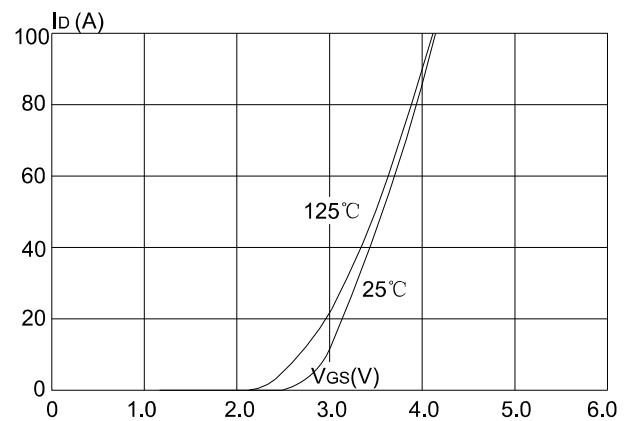


Figure 2: Typical Transfer Characteristics

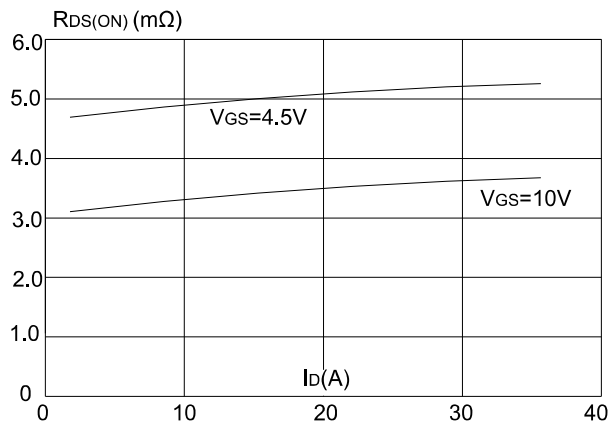


Figure 3: On-resistance vs. Drain Current

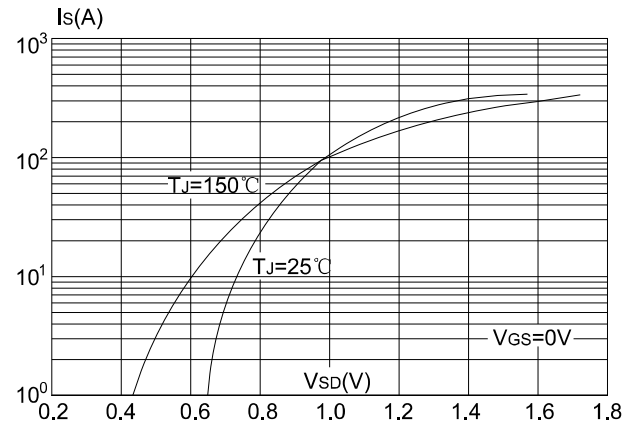


Figure 4: Body Diode Characteristics

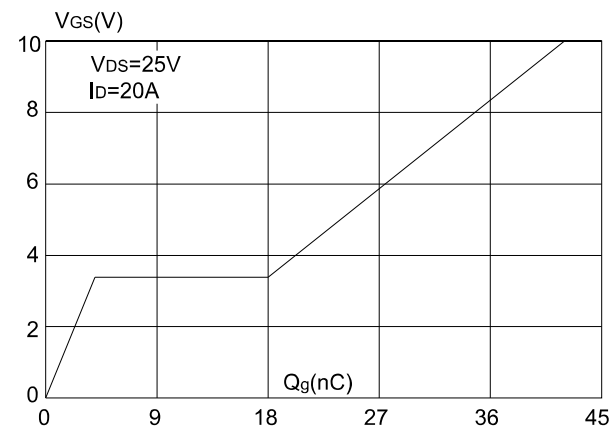


Figure 5: Gate Charge Characteristics

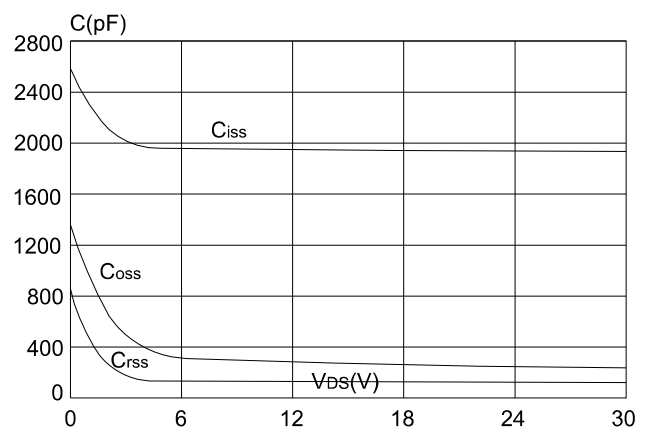


Figure 6: Capacitance Characteristics

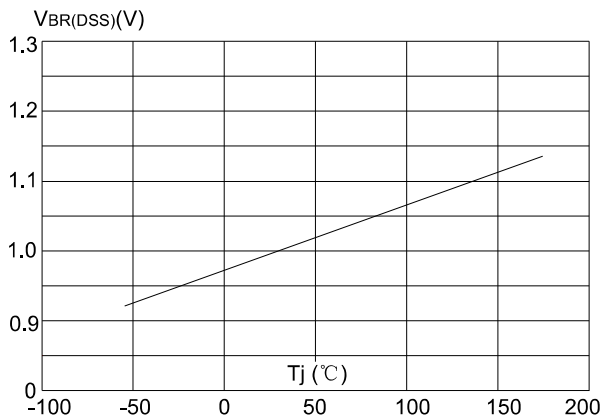


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

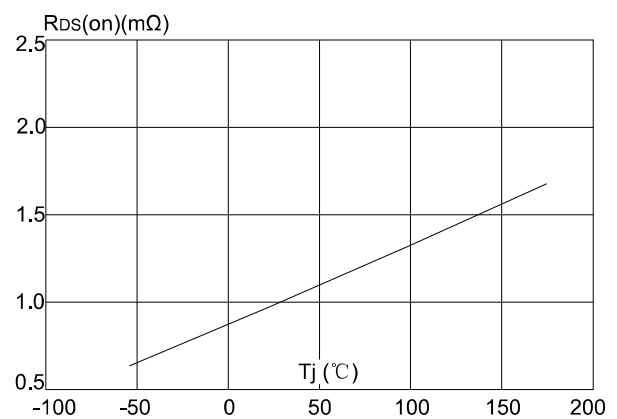


Figure 8: Normalized on Resistance vs. Junction Temperature

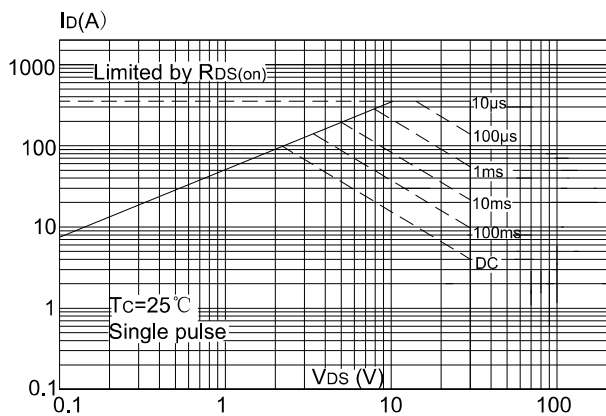


Figure 9: Maximum Safe Operating Area

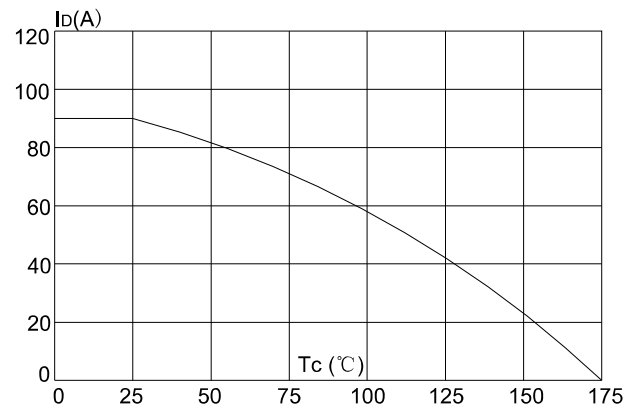


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

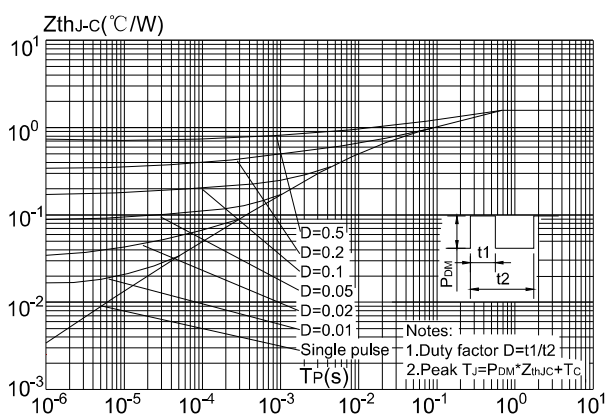
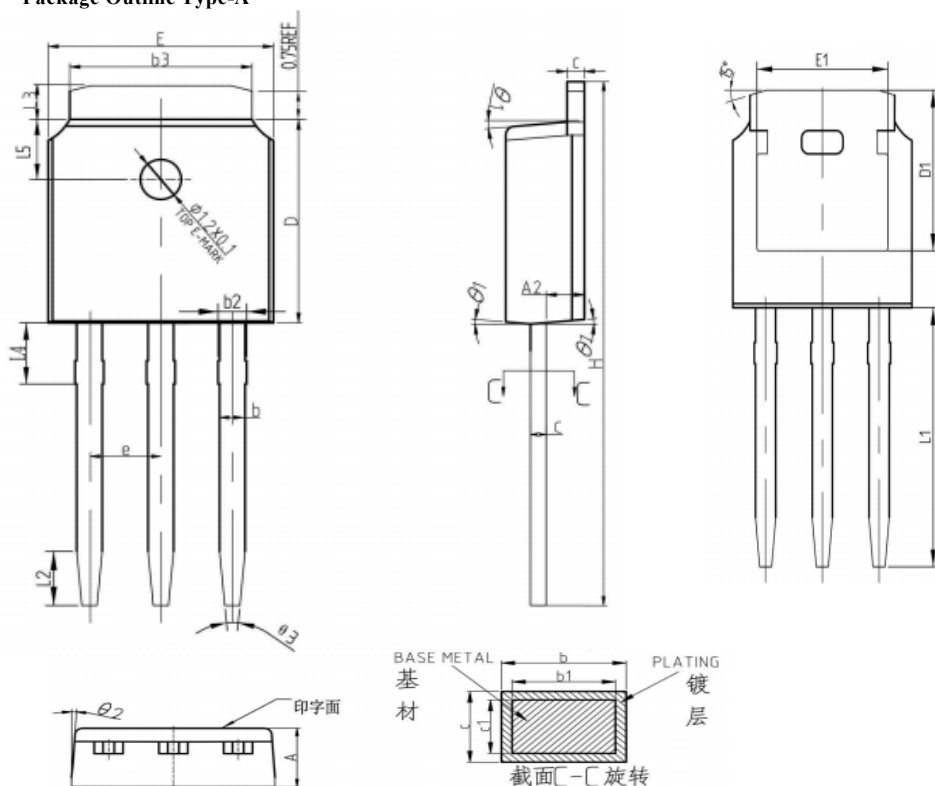


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case (TO-252)

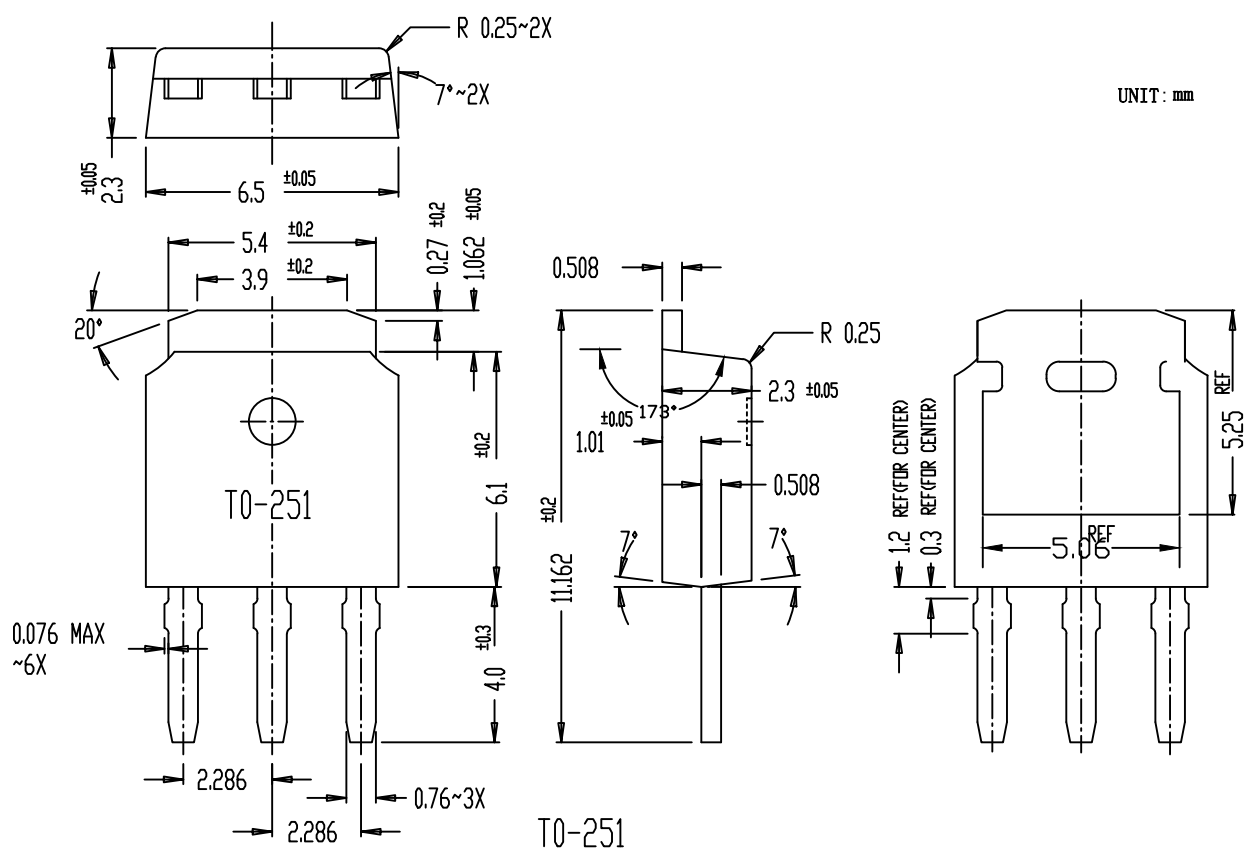
Package Outline Type-A



SYMBOL	mm		
	MIN	NOM	MAX
*A	2.20	2.30	2.38
*A2	0.97	1.07	1.17
*b	0.72	0.78	0.85
b1	0.71	0.76	0.81
*b2	0.72	0.88	0.95
*b3	5.23	5.33	5.46
*c	0.47	0.53	0.58
c1	0.46	0.51	0.56
*D	6.00	6.10	6.20
D1	5.30REF		
*E	6.50	6.60	6.70
E1	4.70	4.83	4.92
*e	2.286BSC		
*H	16.10	16.40	16.60
*L1	9.20	9.40	9.60
L2	1.25	1.35	1.45
*L3	0.90	1.02	1.22
L4	0.95	1.05	1.15
L5	1.70	1.80	1.90
θ 1	5°	7°	9°
θ 2	5°	7°	9°
θ 3	11°	13°	15°

带*为检验尺寸

Package Outline Type-B



Marking Information:

①. Doingter LOGO

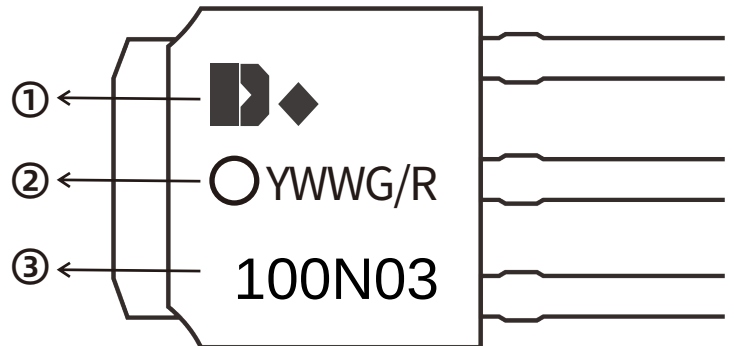
②. Date Code(YWWG / R)

Y : Year Code , last digit of the year

WW : Week Code(01-53)

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

③. Part NO.



Attention :

- Information furnished in this document is believed to be accurate and reliable. However, Shenzhen Doingter Semiconductor Co.,Ltd. assumes no responsibility 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 no responsibility 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 Doingter Semiconductor Co.,Ltd. Printed All rights reserved.