

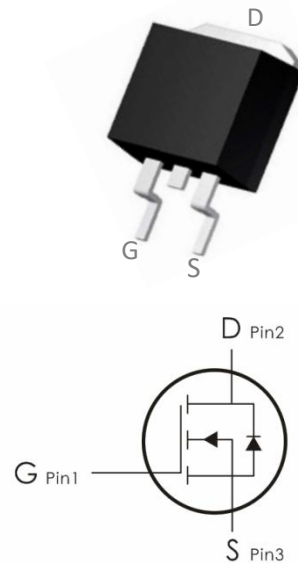
Description:

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) $V_{DS}=30V, I_D=150A, R_{DS(on)} < 3m\Omega @ V_{GS}=10V$ (Typ: $2.3m\Omega$)
- 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
BC003NG-E	C003N-E	TO- 263	800 pcs/Reel

Absolute Maximum Ratings: ($T_C=25^\circ C$ 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 ¹	150	A
	Continuous Drain Current- $T_C=100^\circ C$ ¹	105	
I_{DM}	Pulsed Drain Current ²	450	
P_D	Power Dissipation	109	W
E_{AS}	Single pulse avalanche energy ³	248	mJ
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55-+175	$^\circ C$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance, Junction to Case	1.4	$^\circ C/W$

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	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	2.5	V
R _{DS(on)}	Drain-Source On Resistance ⁴	V _{GS} =10V, I _D =20A	---	2.3	3	m Ω
		V _{GS} =4.5V, I _D =10A	---	4.2	6	m Ω
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1MHz	---	3800	---	pF
C _{oss}	Output Capacitance		---	499	--	
C _{rss}	Reverse Transfer Capacitance		---	430	---	
Switching Characteristics						
t _{d(on)}	Turn-On Delay Time	V _{DS} =15V, I _D =30A, R _{ENG} =3 Ω ,V _{GS} =10V	---	25	---	ns
t _r	Rise Time		---	24	---	ns
t _{d(off)}	Turn-Off Delay Time		---	90	---	ns
t _f	Fall Time		---	38	---	ns
Q _g	Total Gate Charge	V _{GS} =10V, V _{DS} =15V, I _D =30A	---	40	---	nC
Q _{gs}	Gate-Source Charge		---	8	---	nC
Q _{gd}	Gate-Drain “Miller” Charge		---	12	---	nC
Drain-Source Diode Characteristics						
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _{SD} =30A	---	---	1.2	V
I _S	Continuous Drain Curren	V _D =V _G =0V	---	---	150	A
I _{SM}	Pulsed Drain Current		---	---	450	A
T _{rr}	Reverse Recovery Time	I _F =20A, T _J =25 °C	---	42	---	ns
Q _{rr}	Reverse Recovery Charge	dI/dt=100A/us	---	39	---	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 : $T_J=25^{\circ}C, V_{DD}=15V, V_G=10V, L=0.5mH$
4. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 0.5\%$

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

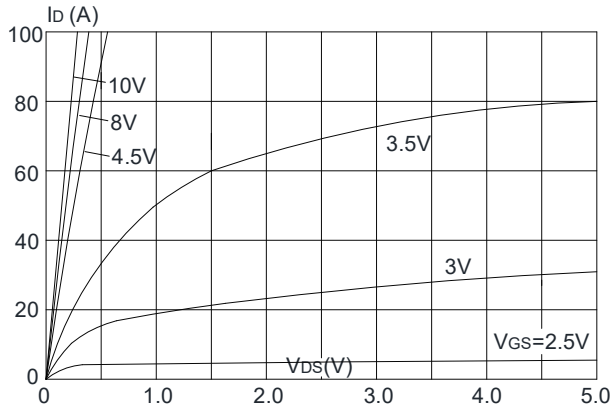


Figure 1: Output Characteristics

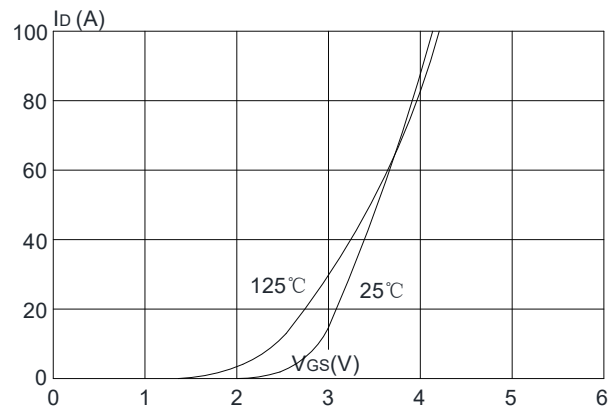


Figure 2: Typical Transfer Characteristics

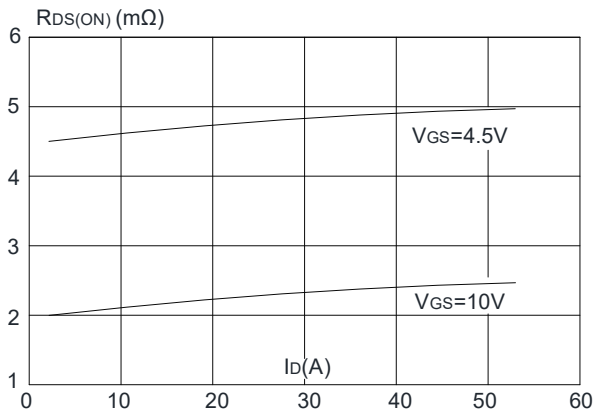


Figure 3: On-resistance vs. Drain Current

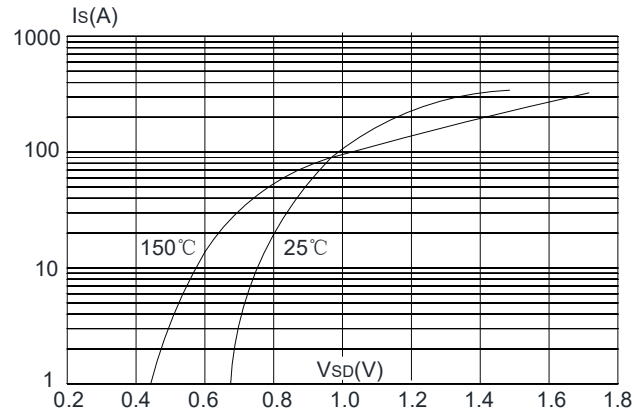


Figure 4: Body Diode Characteristics

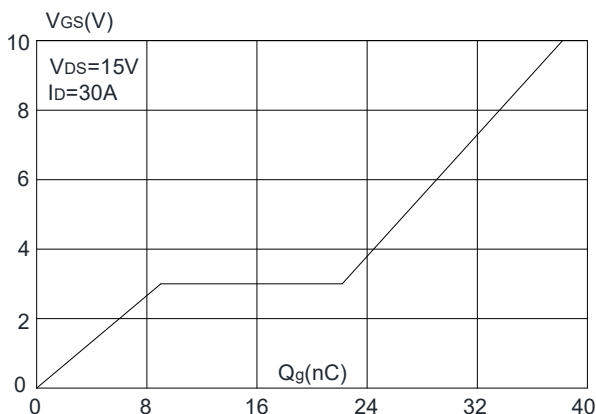


Figure 5: Gate Charge Characteristics

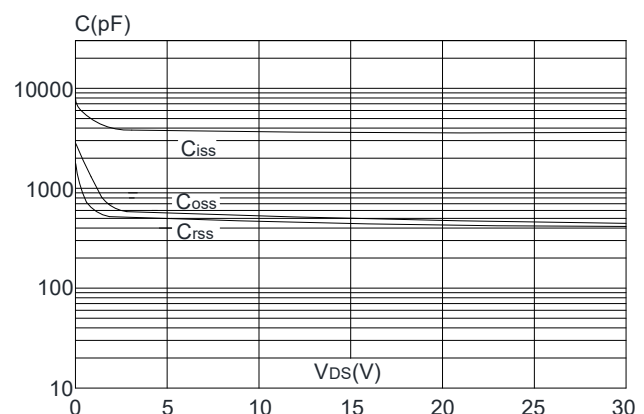


Figure 6: Capacitance Characteristics

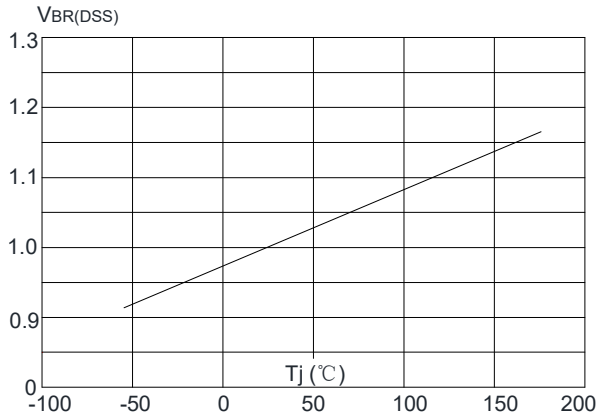


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

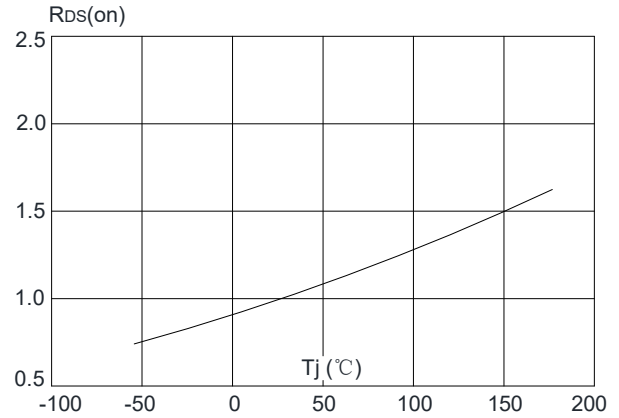


Figure 8: Normalized on Resistance vs. Junction Temperature

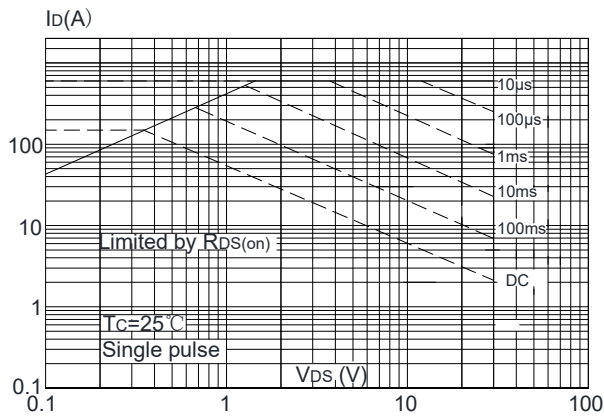


Figure 9: Maximum Safe Operating Area

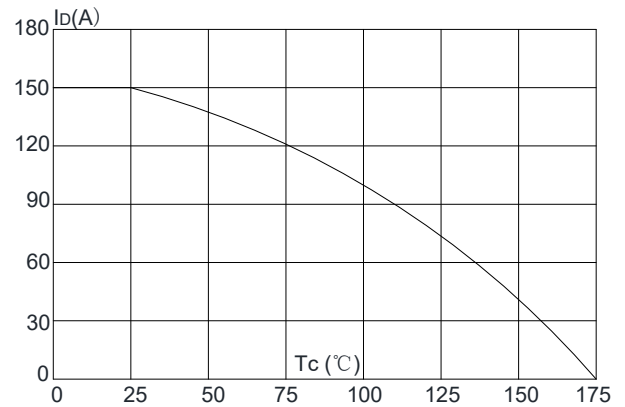


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

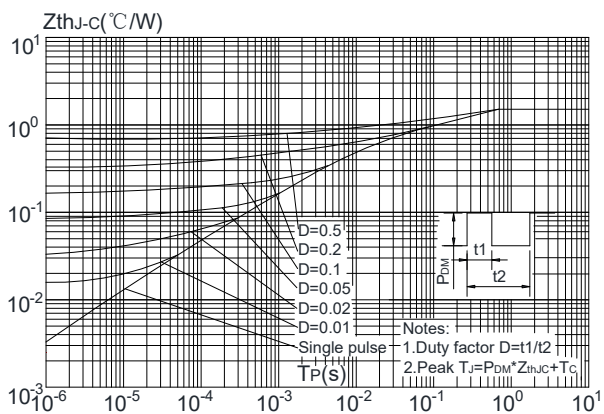
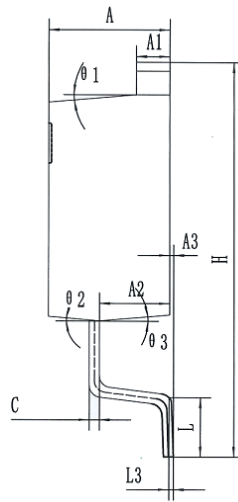
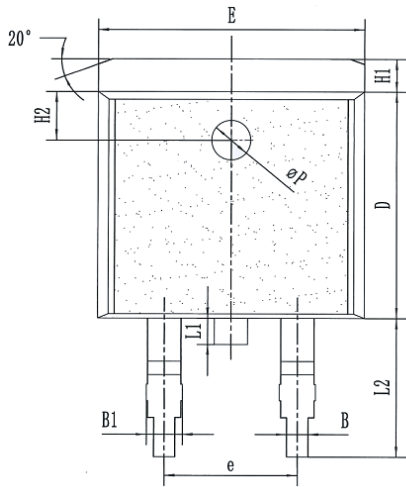


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case

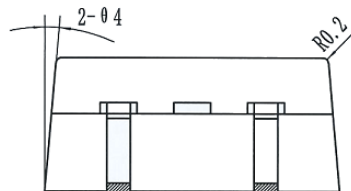
TO-263 Package Information: Unit:mm

Package Outline Type-A

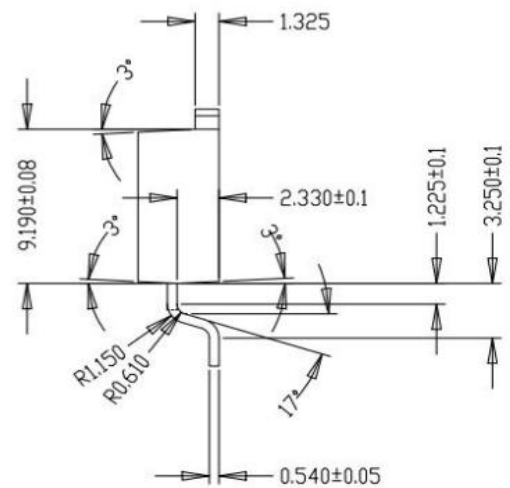
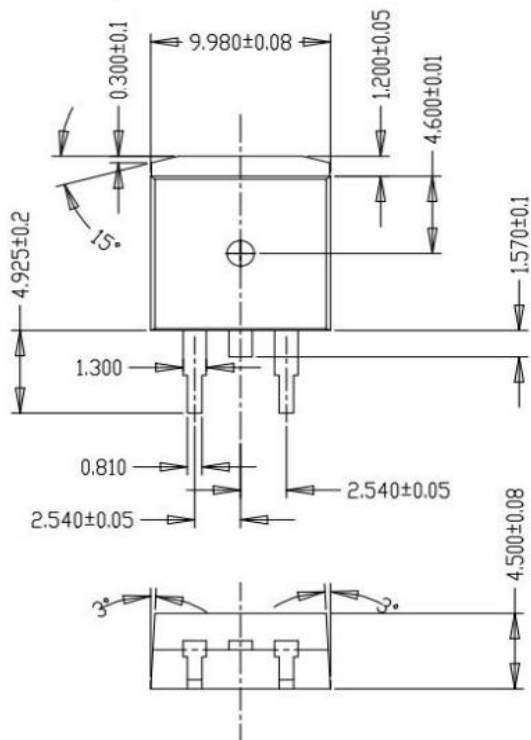


COMMON DIMENSIONS

SYMBOL	MIN	NOM	MAX
A	4.50	4.60	4.70
A1	1.22	1.27	1.32
A2	2.57	2.67	2.77
A3	0.00		0.15
B	0.76	0.81	0.87
B1	1.32	1.37	1.42
C	0.33	0.38	0.43
D	8.55	8.65	8.75
e	5.08 BSC		
E	10.06	10.16	10.26
H	14.80	15.00	15.20
H1	1.17	1.27	1.37
H2	1.85 REF		
L	2.09	2.39	2.69
L1	0.80	1.00	1.20
L2	4.88	5.08	5.28
L3	0.25 REF		
ΦP	1.40	1.50	1.60
θ1	3°	5°	7°
θ2	3°	5°	7°
θ3	3°	5°	7°
θ4	3°	5°	7°

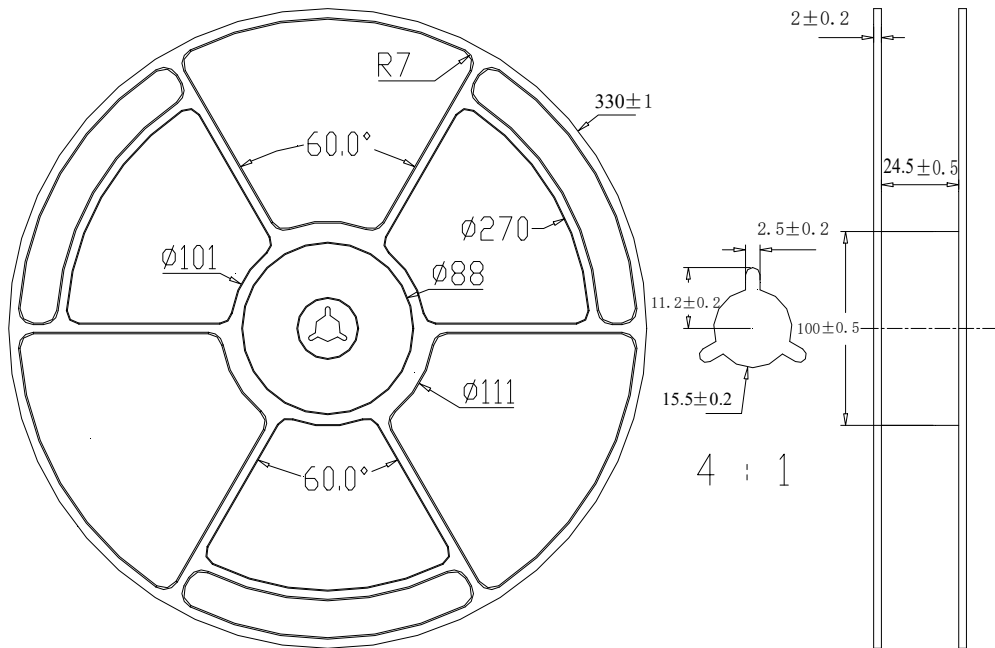


Package Outline Type-B

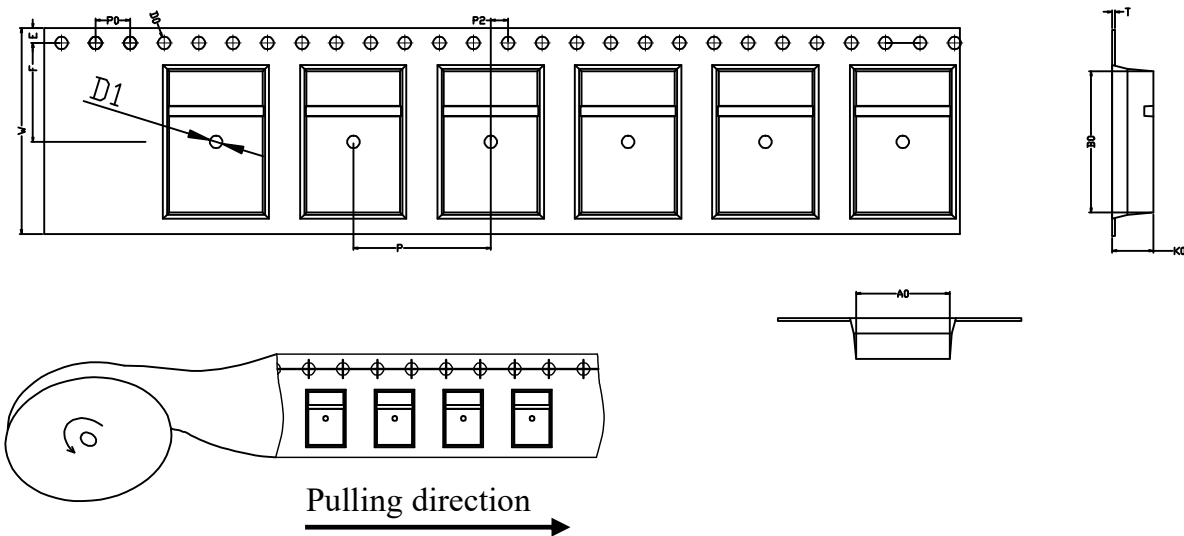


Tape & Reel Information

Dimensions in mm



ITEM	W	A0	B0	K0	S0	E	F	D0	D1
DIM	24	10.9	16.45	4.8	/	1.75	11.5	1.5	1.5
TOLR	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.16 -0.00	+0.10 -0.10



Marking Information:

①. Doingter LOGO

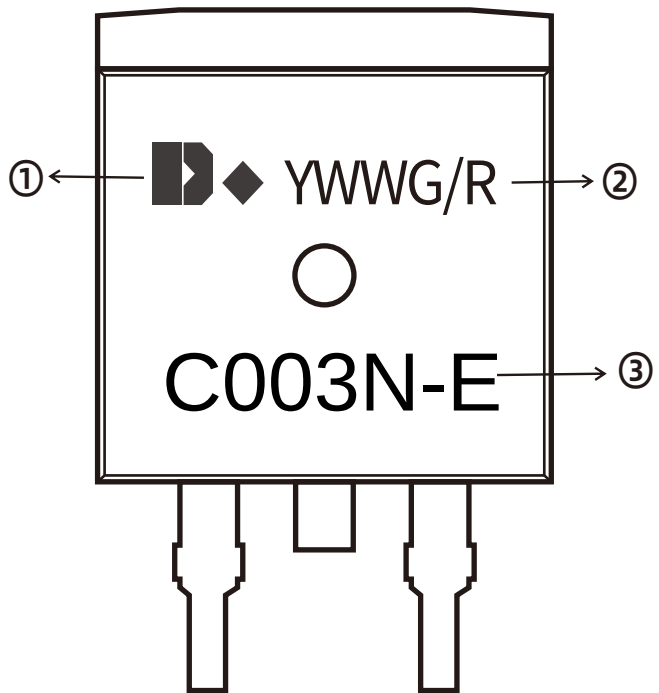
②. Date Code(YWWG / R)

Y : Year Code , last digit of the year

WW : Week Code(01-53)

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

③. Part NO.



Previous Version

Version	Date	Subjects (major changes since last revision)
1.0	2025-06-22	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.