



TM100N03YS

N-Channel Enhancement Mosfet

General Description

- Low $R_{DS(ON)}$
- RoHS and Halogen-Free Compliant

Applications

- Load switch
- PWM

General Features

$V_{DS} = 30V$ $I_D = 100A$

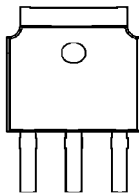
$R_{DS(ON)} = 3.5m\Omega (typ) @ V_{GS} = 10V$

100% UIS Tested

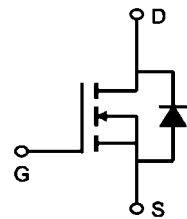
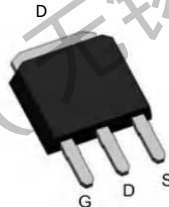
100% R_g Tested



YS:TO-251S-3L



Marking: 100N03



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

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D @ T_C = 25^\circ C$	Continuous Drain Current, $V_{GS} @ 10V^1$	100	A
$I_D @ T_C = 100^\circ C$	Continuous Drain Current, $V_{GS} @ 10V^1$	60	A
I_{DM}	Pulsed Drain Current ²	250	A
$P_D @ T_A = 25^\circ C$	Total Power Dissipation ³	3.6	W
$P_D @ T_C = 25^\circ C$	Total Power Dissipation ³	52	W
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ C$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ C$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient ¹	---	62	$^\circ C/W$
$R_{\theta JC}$	Thermal Resistance Junction Case ¹	---	6.6	$^\circ C/W$



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Electrical Characteristics (T_J=25°C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	30	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =24V, V _{GS} =0V T _j =85°C	-	-	1 30	μA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	0.9	1.2	1.5	V
I _{GSS}	Gate Leakage Current	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
R _{DS(ON)}	Drain-Source On-state Resistance	V _{GS} =10V, I _{DS} =20A V _{GS} =4.5V, I _{DS} =15A	- -	3.5 5.5	5.5 6.8	mΩ
Body Diode Characteristics						
V _{SD}	Diode Forward Voltage	I _{SD} =40A, V _{GS} =0V	-	0.7	1.3	V
Dynamic Characteristics ^e						
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =10V, Frequency=1.0MHz	-	1356	-	pF
C _{oss}	Output Capacitance		-	55	-	
C _{rss}	Reverse transfer capacitance		-	45	-	
t _{d(ON)}	Turn-on delay Time	V _{GS} =10V ,V _{DS} =15V R _G =1.8Ω, I _D =20A , R _L =30Ω	-	8	-	nS
t _r	Turn-on rise Time		-	9	-	
t _{d(OFF)}	Turn-off delay Time		-	32	-	
t _f	Turn-off rise Time		-	6	-	
Gate Charge Characteristics ^e						
Q _g	Total Gate Charge	V _{DS} =15V, V _{GS} =10V, I _{DS} =20A	-	23	-	
Q _{gs}	Gate-Source Charge		-	5	-	
Q _{gd}	Gate-Drain Charge		-	3	-	

Note: 1. Pulse test: pulse width≤300uS, duty cycle≤2%

2.Static parameters are based on package level with recommended wire bonding



Typical Performance Characteristics

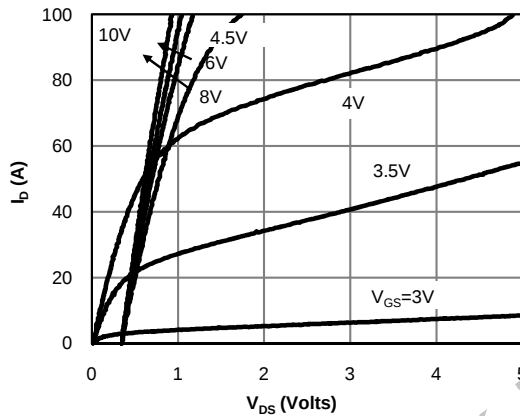


Fig 1: On-Region Characteristics (Note E)

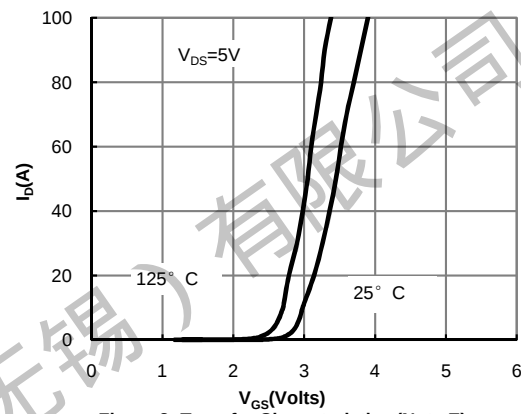


Figure 2: Transfer Characteristics (Note E)

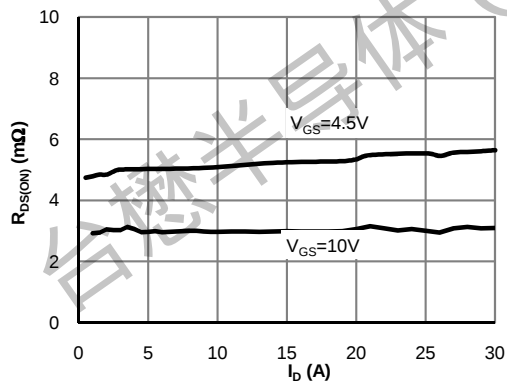


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

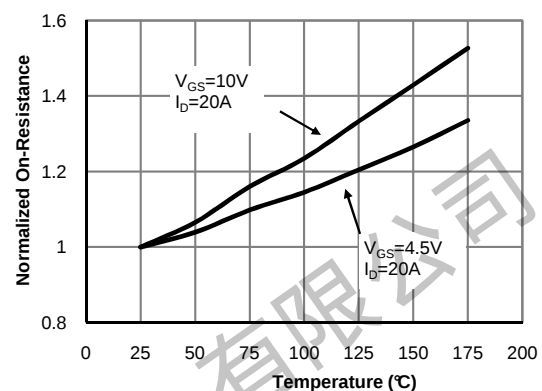


Figure 4: On-Resistance vs. Junction Temperature (Note E)

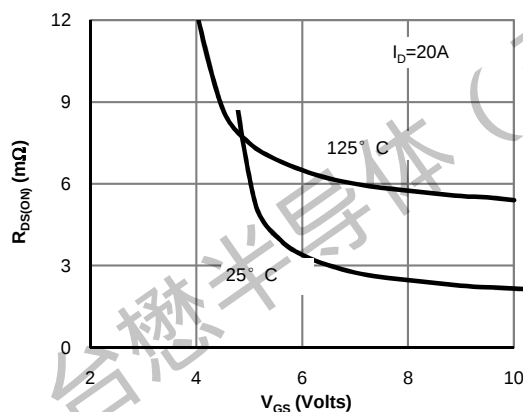


Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

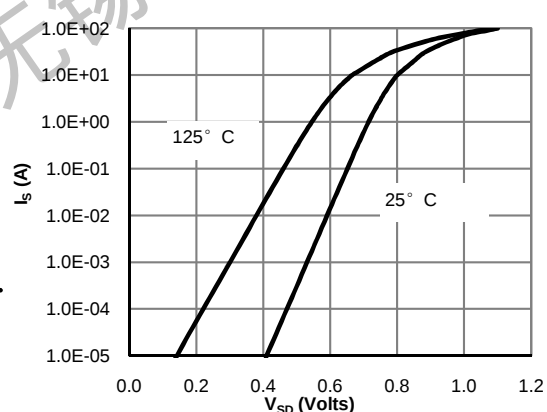
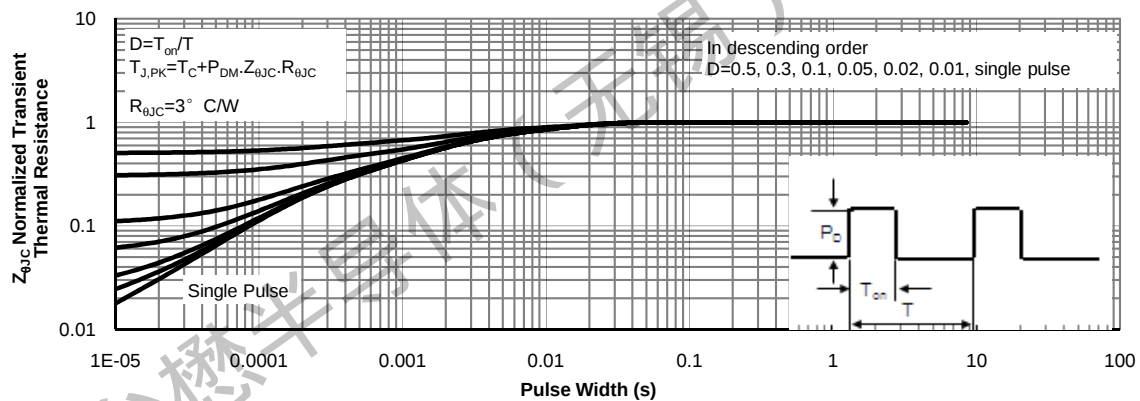
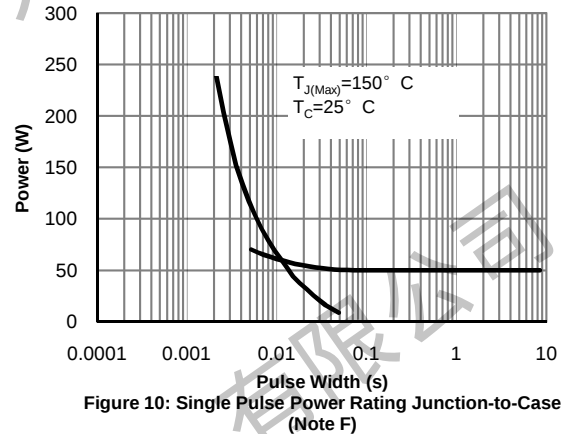
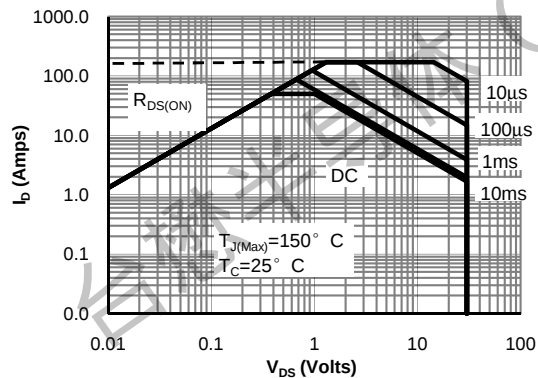
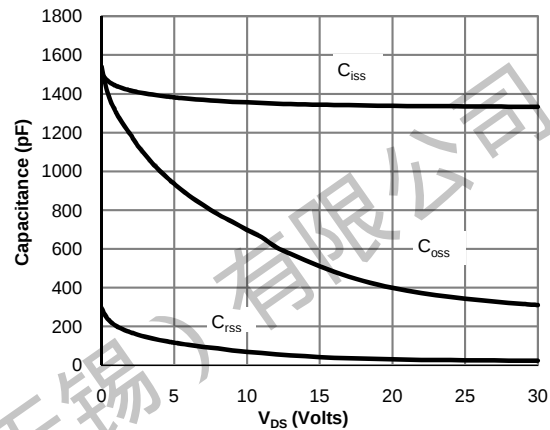
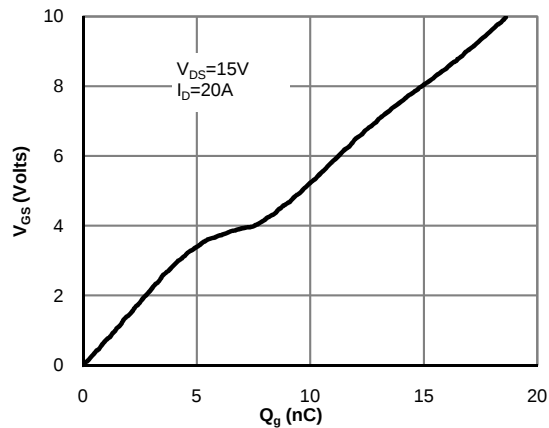


Figure 6: Body-Diode Characteristics (Note E)



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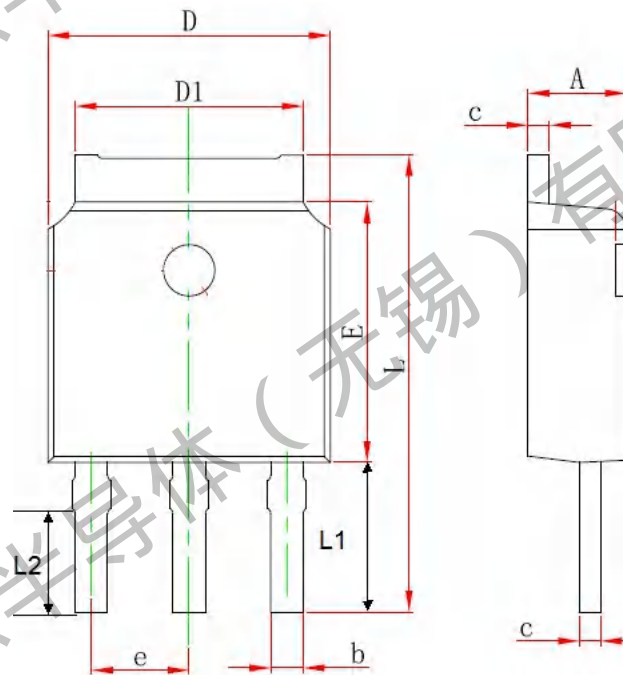
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Package Mechanical Data:TO-251S-3L

UNIT: mm

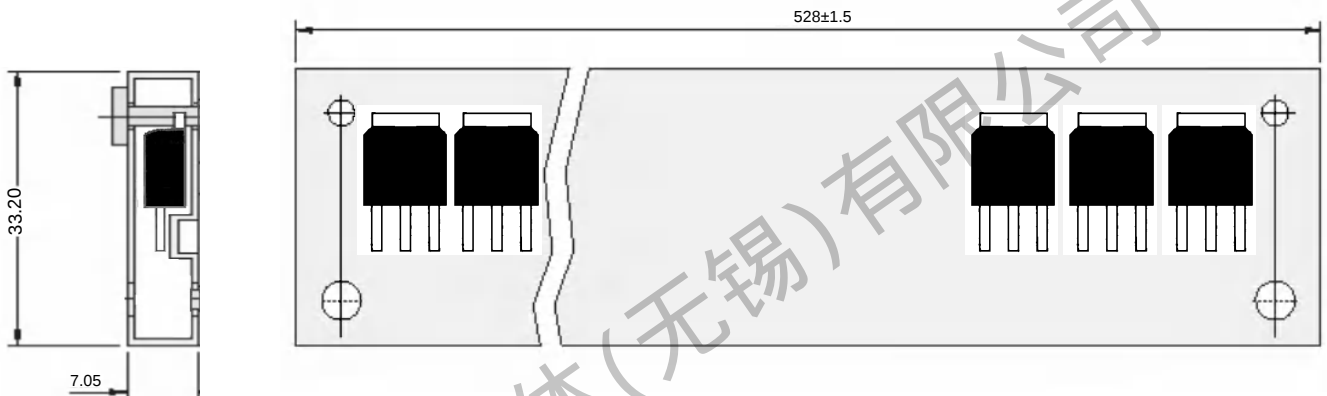
SYMBOL	min	nom	max
A	2.20		2.40
b	0.50		0.85
C	0.45	0.50	0.60
D	6.50		6.70
D1	5.10		5.50
E	5.9		6.20
e	2.18	2.29	2.38
L	11.00		12.40
L1	3.9		4.2
L2	2.7		3.0





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All Dimensions are in mm

1.TO-251S-3L Packaging

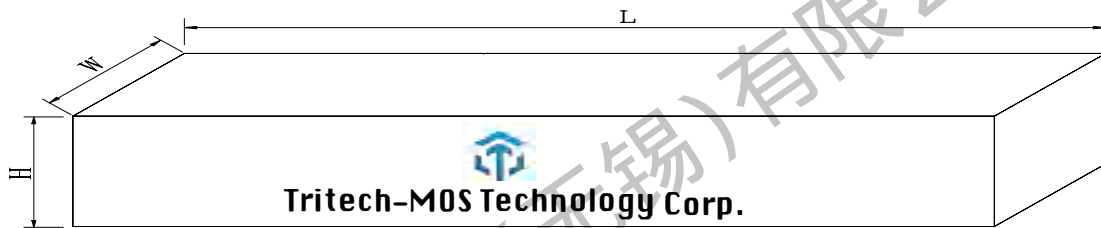
Package	Packing Form	Quantity		
		Tube	Inner Box	Outbox
TO-251S-3L	Tube Tape	80 Or 75	5 Or 6	1



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Inner Box



Dimension : 580 (L)×154(W) ×49(H) mm

Quantity : 80 × 50Ea = 4000pcs Or 75 × 56Ea = 4200pcs

Outer Box



Dimension : 595(L)×285(W) ×185(H) mm

Quantity : 4000 × 6Ea = 24000pcs Or 4200 × 5Ea = 21000pcs



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Revision history:

Date	Rev	Description	Page
2023.07.21	23.07	Original	