



TMG80N10D

N-Channel Enhancement Mosfet

General Description

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

Applications

- Load switch
- PWM

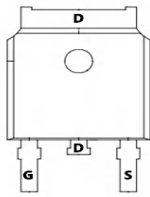
General Features

$V_{DS} = 100V$ $I_D = 80A$

$R_{DS(ON)} = 7.2m\Omega(\text{typ.}) @ V_{GS} = 10V$

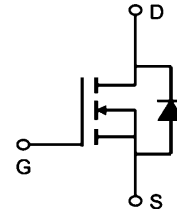
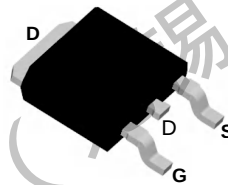
100% UIS Tested

100% R_g Tested



Marking G80N10

D:TO-252-3L



Absolute Maximum Ratings ($T_C = 25^\circ\text{C}$ Unless Otherwise Noted)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	100	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D @ T_C = 25^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ 10V$	80	A
$I_D @ T_C = 100^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ 10V$	56	A
I_{DM}	Pulsed Drain Current	310	A
EAS	Single Pulse Avalanche Energy	132	mJ
$P_D @ T_C = 25^\circ\text{C}$	Total Power Dissipation	110	W
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ\text{C}$

Thermal Data

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



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Electrical Characteristics at Tc=25°C unless otherwise specified

Characteristics	Test Condition	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS} = 0\text{ V}, I_D = 250\text{ }\mu\text{A}$	BV_{DSS}	100	-	-	V
Drain-Source Leakage Current	$V_{DS} = 100\text{ V}, V_{GS} = 0\text{ V}$	I_{DSS}	-	-	1	μA
Gate Leakage Current	$V_{GS} = \pm 20\text{ V}, V_{DS} = 0\text{ V}$	I_{GSS}	-	-	± 100	nA
Gate-Source Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\text{ }\mu\text{A}$	$V_{GS(th)}$	1	2	3	V
Drain-Source On-State Resistance	$V_{GS}=10\text{V}, I_D=30\text{A}$	$R_{DS(on)}$	-	7.2	8.7	m Ω
Forward Transconductance	$V_{DS} = 5\text{ V}, I_D = 30\text{ A}$	g_{fs}	-	50	-	S
Input Capacitance	$V_{DS}=15\text{V}, V_{GS}=0\text{V}, f=1\text{MHz}$	C_{iss}	-	2000	-	pF
Output Capacitance		C_{oss}	-	511	-	pF
Reverse Transfer Capacitance		C_{rss}	-	12	-	pF
Turn-on Delay Time(Note2)	$V_{DD}=50\text{V}, V_{GS}=10\text{V}, R_G=3\text{ }\Omega$ $I_D=30\text{A}$	$t_{d(ON)}$	-	17	-	ns
Rise Time(Note2)		t_r	-	20	-	ns
Turn-Off Delay Time(Note2)		$t_{d(OFF)}$	-	60	-	ns
Fall Time(Note2)		t_f	-	18	-	ns
Total Gate Charge(Note2)	$V_{DS}=50\text{V}, V_{GS}=10\text{V},$ $I_D=30\text{A}$	Q_G	-	10	-	nC
Gate to Source Charge(Note2)		Q_{GS}	-	14	-	nC
Gate to Drain Charge(Note2)		Q_{GD}	-	28	-	nC

Source-Drain Diode Characteristics at Ta=25°C unless otherwise specified

Characteristics	Test Condition	Symbol	Min.	Typ.	Max.	Unit
Maximun Body-Diode Continuous Current		I_S	-	-	80	A
Maximun Body-Diode Pulsed Current(Note2)		I_{SM}	-	-	320	A
Drain-Source Diode Forward Voltage	$V_{GS}=0\text{V}, I_S=30\text{A}, T_J=25^\circ\text{C}$	V_{SD}	-	0.85	-	V

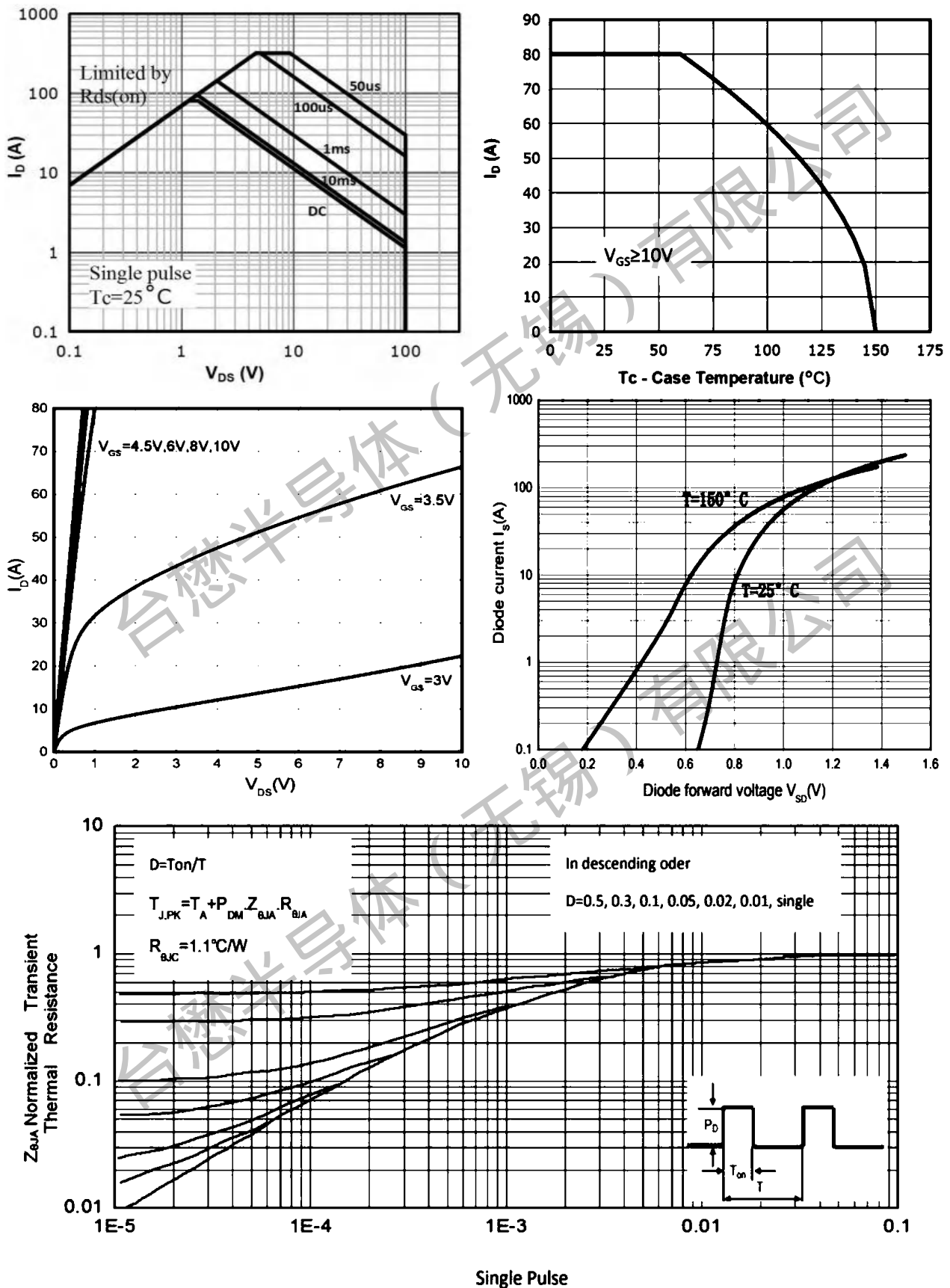
Note2:Pulse test: 300 μs pulse width, 2 % duty cycle



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RATINGS AND CHARACTERISTIC CURVES

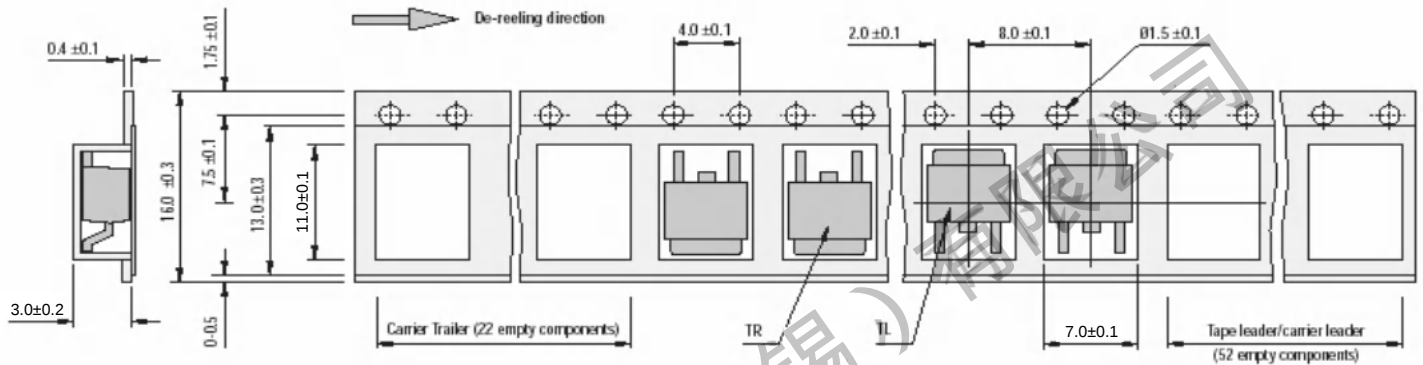




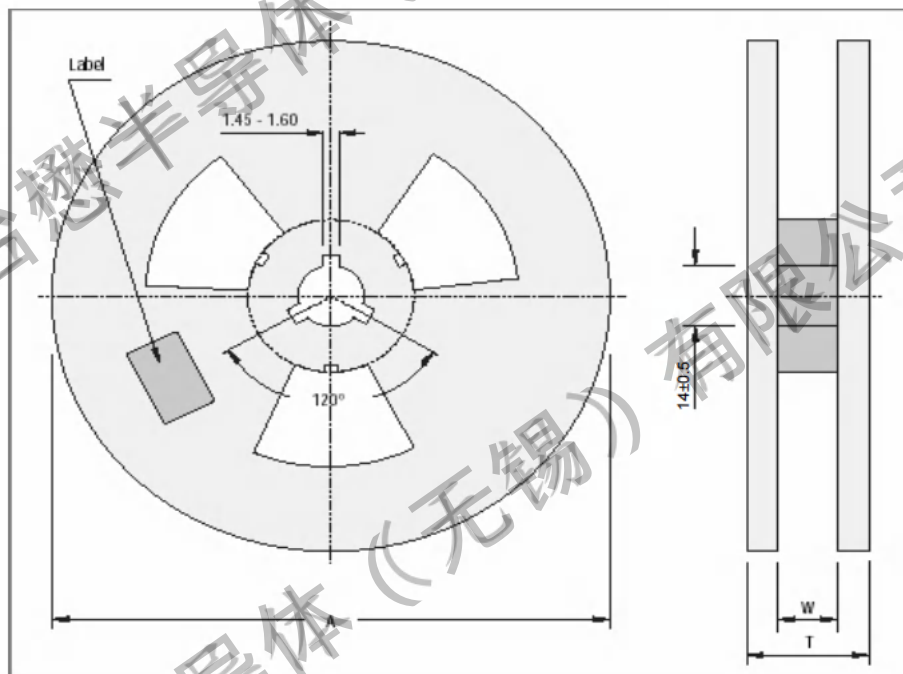
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TO-252-3L Embossed Carrier Tape



TO-252-3L Reel



All Dimensions are in mm.

Reel Specifications				
Package	Tape Width	Reel Dia. A - Max	Inside Thickness W	Reel Thickness T - max
TO-252-3L	16	330	18.0 ± 1.5	20

Packaging Information

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
2,500 pcs	13 inch	5,000 pcs	355×370×50	25,000 pcs	380×275×380	



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Revision history:

Date	Rev	Description	Page
2023.05.06	23.05	Original	