


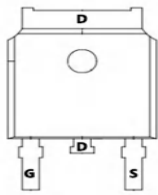


TMG80P10D

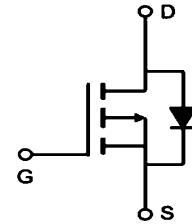
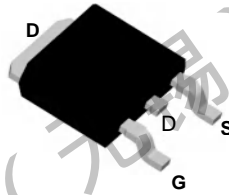
P-Channel Enhancement Mosfet

<p>General Description</p> <ul style="list-style-type: none"> • Low $R_{DS(ON)}$ • RoHS and Halogen-Free Compliant <p>Applications</p> <ul style="list-style-type: none"> • Load switch • PWM 	<p>General Features</p> <p>$V_{DS} = -100V$ $I_D = -80A$</p> <p>$R_{DS(ON)} = 18m\Omega(\text{typ.}) @ V_{GS} = -10V$</p> <p>100% UIS Tested 100% R_g Tested</p> 
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D:TO-252-3L



Marking: G80P10



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

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-100	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D @ T_C = 25^\circ C$	Continuous Drain Current, $V_{GS} @ -10V$	-80	A
I_{DM}	Pulsed Drain Current	-280	A
$P_D @ T_C = 25^\circ C$	Total Power Dissipation	155	W
E_{AS}	Single pulse avalanche energy	465	mJ
T_{STG}	Storage Temperature Range	-55 to 175	$^\circ C$
T_J	Operating Junction Temperature Range	-55 to 175	$^\circ C$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	50	$^\circ C/W$
$R_{\theta JC}$	Thermal Resistance Junction-Case	---	0.8	$^\circ C/W$



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Electrical Characteristics (T_J = 25°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	-100	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V _{GS} =0V, V _{DS} =-100V	---	---	-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	-2	-3	V
R_{DS(ON)}	Drain-Source On Resistance ³	V _{GS} =-10V, I _D =-10A	---	18	22	m Ω
Dynamic Characteristics						
C_{iss}	Input Capacitance	V _{DS} =-50V, V _{GS} =0V, f=1MHz	---	4062	---	pF
C_{oss}	Output Capacitance		---	352	--	
C_{rss}	Reverse Transfer Capacitance		---	26	---	
Switching Characteristic						
t_{d(on)}	Turn-On Delay Time	V _{DS} =-50V, I _D =-20A, R _{ENG} =5 Ω, V _{GS} =-10V	---	15.7	---	ns
t_r	Rise Time		---	18.9	---	ns
t_{d(off)}	Turn-Off Delay Time		---	52	---	ns
t_f	Fall Time		---	19.9	---	ns
Q_g	Total Gate Charge		---	54.7	---	nC
Q_{gs}	Gate-Source Charge	V _{GS} =-10V, V _{DS} =-50V, I _D =-20A	---	17.5	---	nC
Q_{gd}	Gate-Drain "Miller" Charge	I _D =-20A	---	7.1	---	nC
Drain-Source Diode Characteristics						
V_{SD}	Diode Forward Voltage	V _{GS} =0V, I _{SD} =-20A	---	---	-1.2	V
I_S	Continuous Drain Current	V _D =V _G =0V	---	---	-80	A
I_{SM}	Pulsed Drain Current		---	---	-280	A
T_{rr}	Reverse Recovery Time	I _F =-20A, V _{DS} =-50V	---	55	---	ns
Q_{rr}	Reverse Recovery Charge	di/dt=100A/us	---	102	---	nC



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

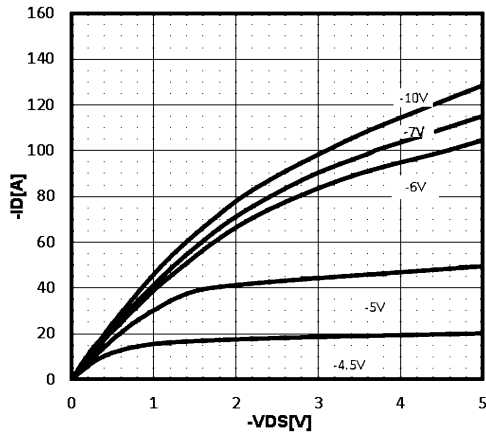


Figure 1: Typ. output characteristics

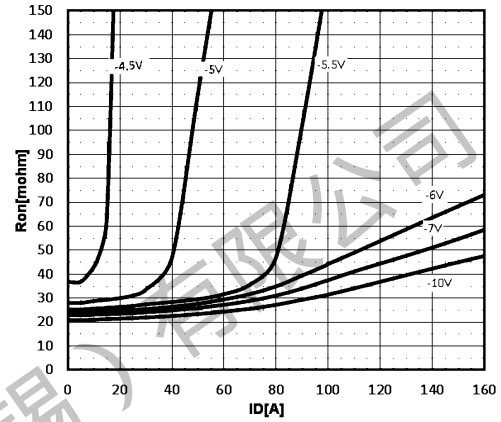


Figure 2: Typ. drain-source on resistance

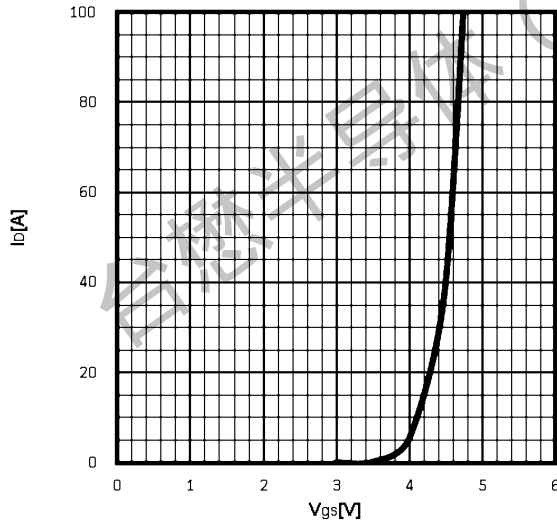


Figure 3: Typ. transfer characteristics

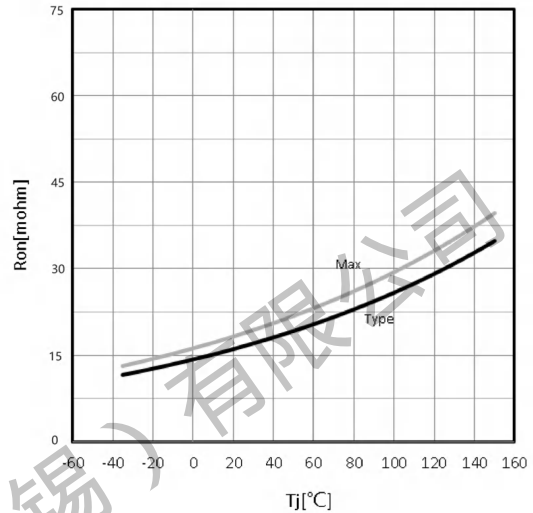


Figure 4: Drain-source on-state resistance

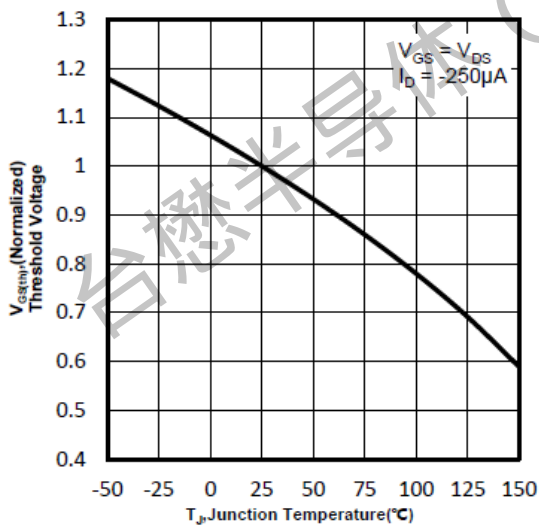


Figure 5: Gate Threshold Voltage

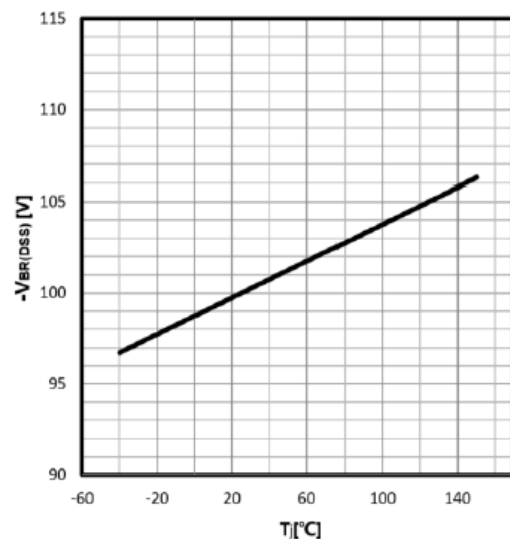


Figure 6: Drain-source breakdown voltage



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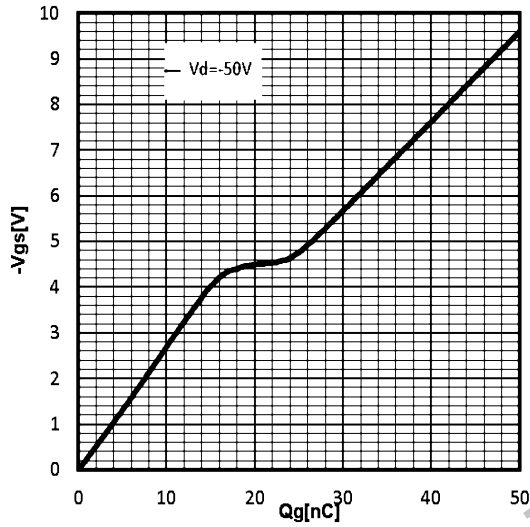


Figure 7: Typ. gate charge

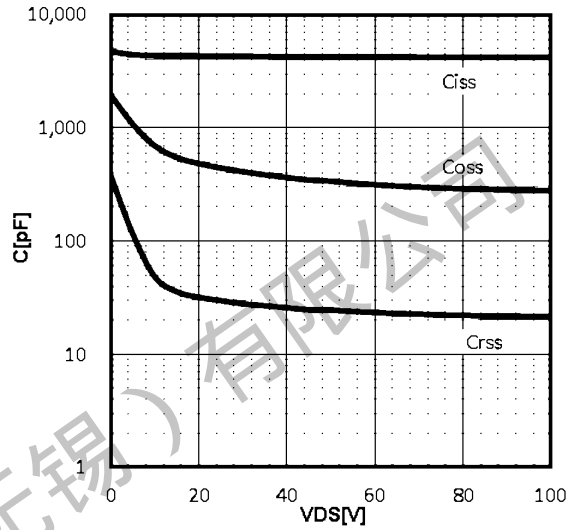


Figure 8: Typ. capacitances

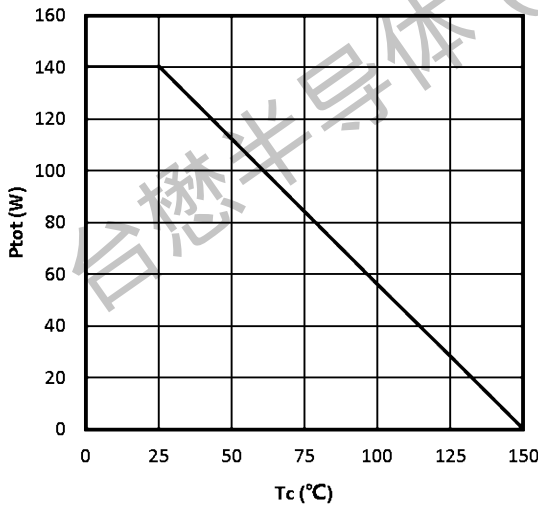


Figure 9: Power Dissipation

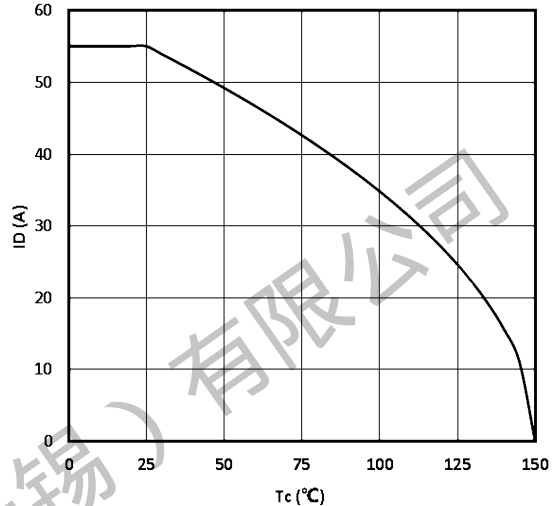


Figure 10: Maximum Drain Current

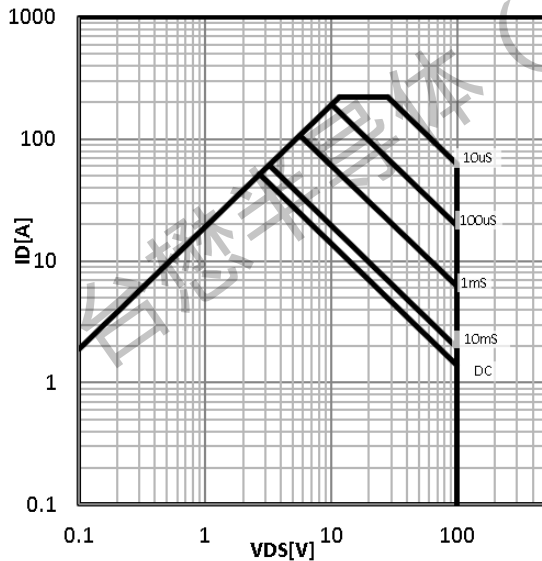


Figure.11: Safe operating area

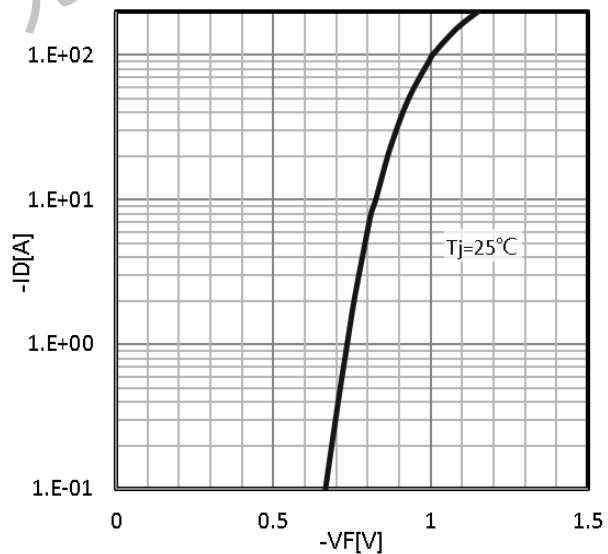


Figure.12 : Body Diode Forward Voltage Variation



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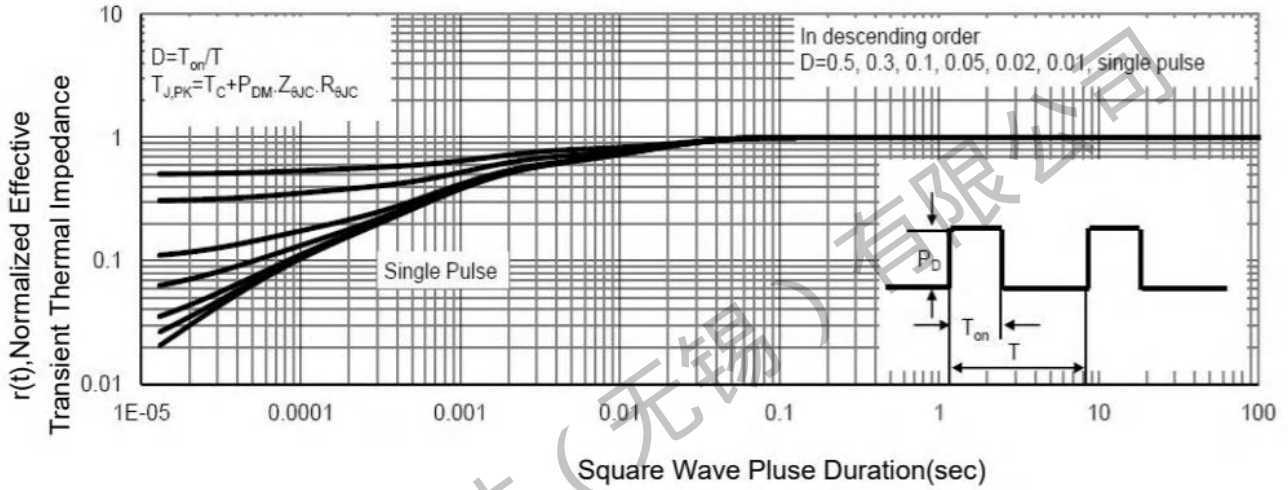


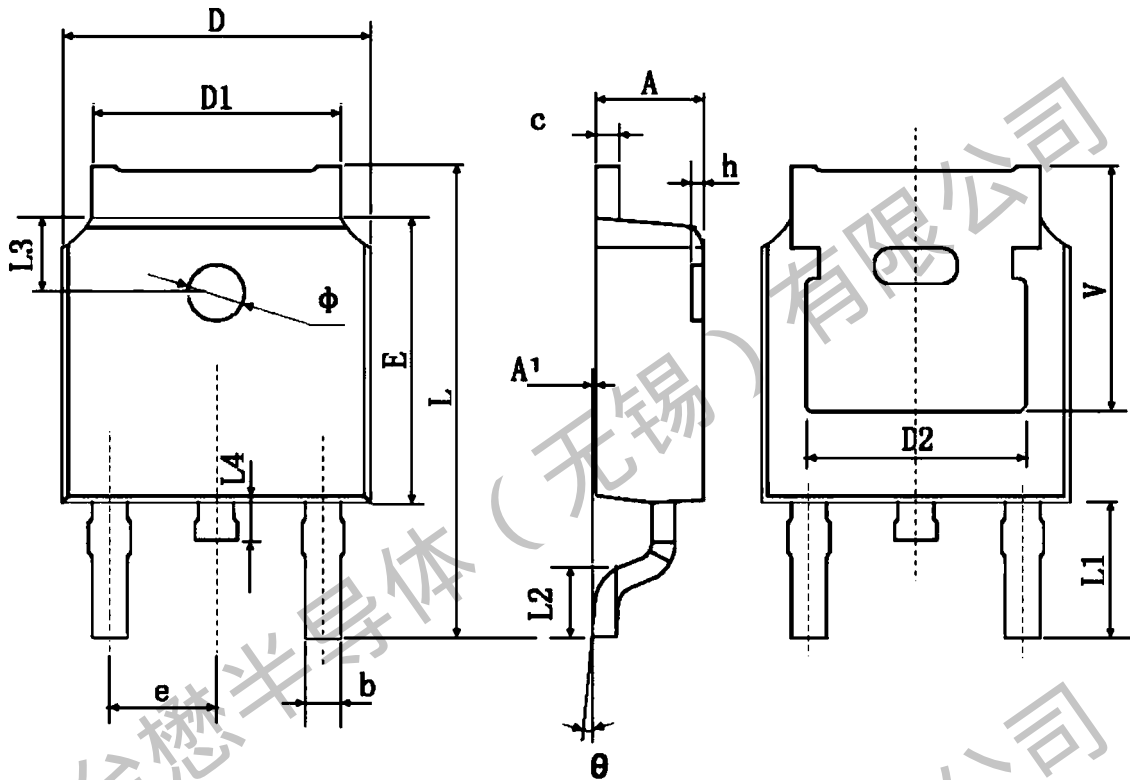
Figure 13: Max. transient thermal impedance



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Package Mechanical Data: TO-252-3L



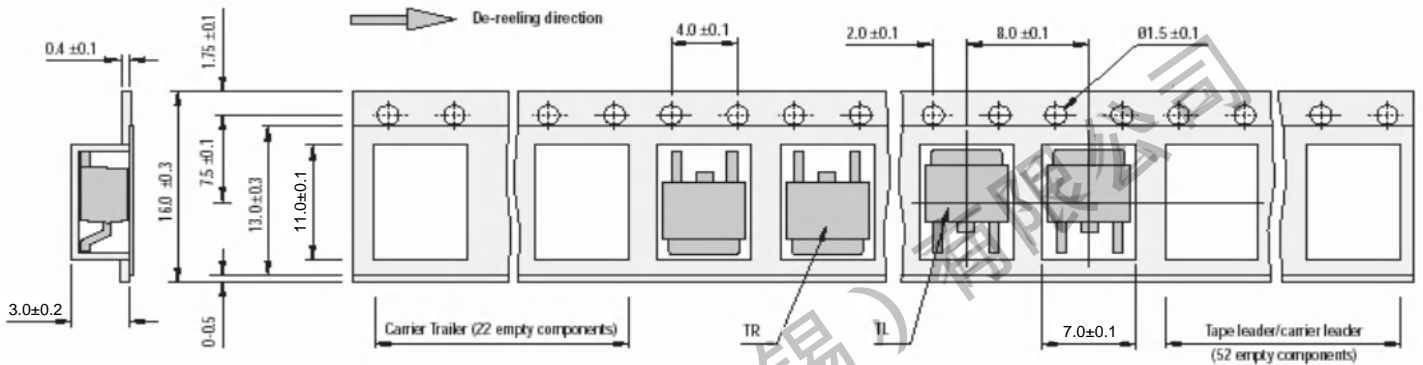
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.660	0.860	0.026	0.034
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.830 TYP.		0.190 TYP.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.800	10.400	0.386	0.409
L1	2.900 TYP.		0.114 TYP.	
L2	1.400	1.700	0.055	0.067
L3	1.600 TYP.		0.063 TYP.	
L4	0.600	1.000	0.024	0.039
φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.350 TYP.		0.211 TYP.	



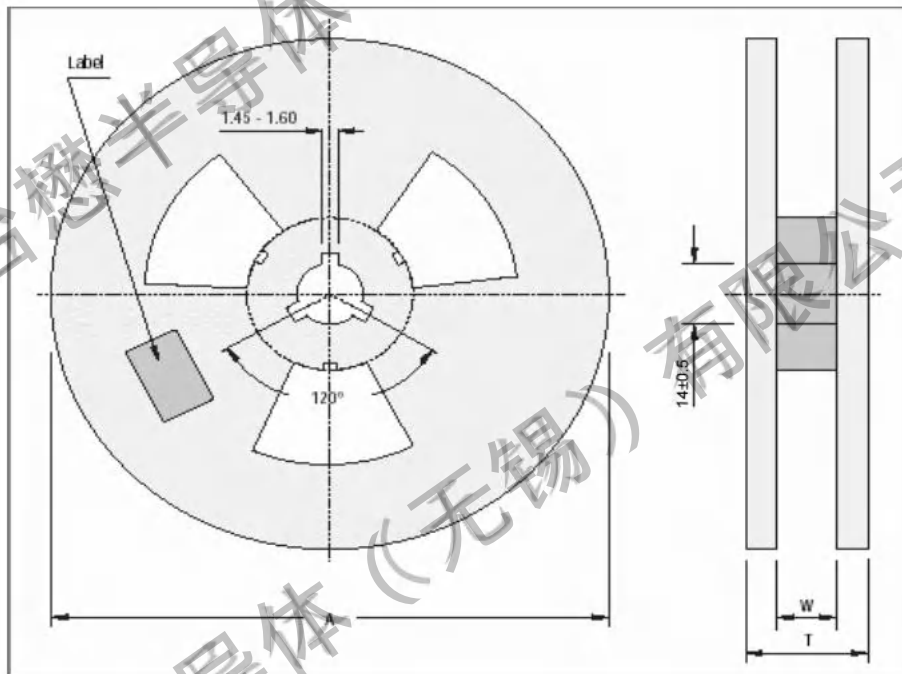
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TO-252-3L Embossed Carrier Tape



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
2023.04.21	23.04	Original	