TMG130N10HP

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 =130A

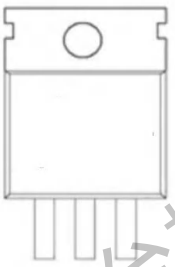
$R_{DS(ON)}$ =4.2mΩ(typ.)@ V_{GS}=10V

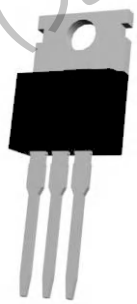
100% UIS Tested

100% R_g Tested

Green Product

P:TO-220AB





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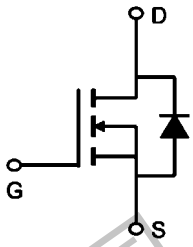


Marking:G130N10

Absolute Maximum Ratings (T_A=25℃unless otherwise noted)

Characteristics	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Continue Drain Current	I_D	130	A
Pulsed Drain Current (Note1)	I_{DM}	481	A
Power Dissipation	P_D	210	W
Single Pulse Avalanche Energy (Note1)	E_{AS}	750	mJ
Operating Temperature Range	T_J	175	°C
Storage Temperature Range	T_{STG}	-55 to +175	°C
Thermal Resistance, Junction to Case	$R_{\theta JC}$	0.71	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	55	°C/W

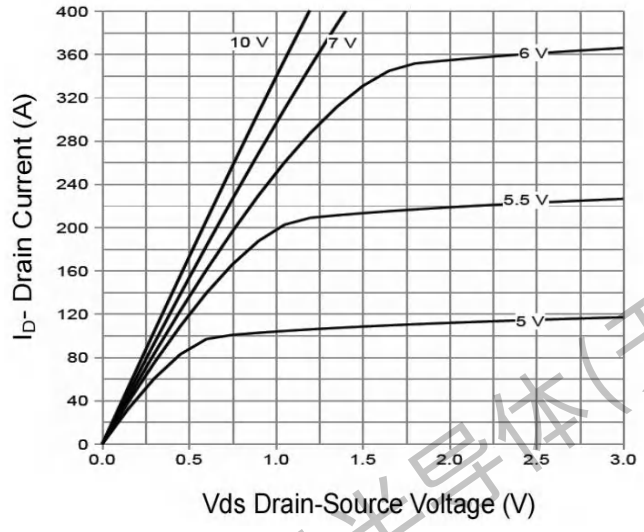
Electrical Characteristics at Tc=25°C unless otherwise specified

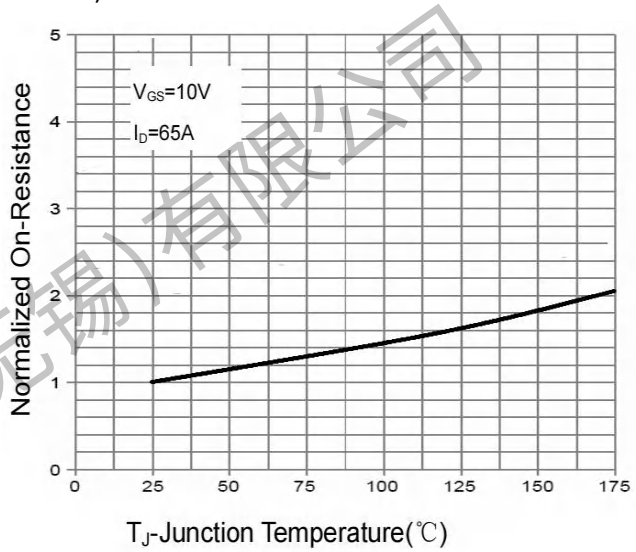
Characteristics	Test Condition	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{GS} = 0 V,I_D = 250 μA	BV_{DSS}	100	-	-	V
Drain-Source Leakage Current	V_{DS} = 100 V, V_{GS} = 0 V	I_{DSS}	-	-	1	μA
Gate Leakage Current	V_{GS} = ± 20 V, V_{DS} = 0 V	I_{GSS}	-	-	±100	nA
Gate-Source Threshold Voltage	V_{DS} = V_{GS} , I_D = 250 μA	$V_{GS(th)}$	2	3	4	V
Drain-Source On-State Resistance (Note 3)	V_{GS} = 10V , I_D = 20 A	$R_{DS(on)}$	-	4.2	5.3	mΩ
Forward Transconductance	V_{DS} = 5 V, I_D = 65 A	gfs	-	130	-	S
Input Capacitance	VDS=50 V , VGS=0V , f=1MHz	C_{iss}	-	4350	-	pF
Output Capacitance		C_{oss}	-	2150	-	pF
Reverse Transfer Capacitance		C_{rss}	-	220	-	pF
Turn-on Delay Time(Note2)	VDD=50 V , VGS=10 V , RG=3 Ω，ID=65A	$t_{d(ON)}$	-	23	-	ns
Rise Time(Note2)		t_r	-	15	-	ns
Turn-Off Delay Time(Note2)		$t_{d(OFF)}$	-	48	-	ns
Fall Time(Note2)		t_f	-	16	-	ns
Total Gate Charge(Note2)	VDS=50V , VGS=10V , ID=65A	Q_G	-	110	-	nC
Gate to Source Charge(Note2)		Q_{GS}	-	33	-	nC
Gate to Drain Charge(Note2)		Q_{GD}	-	30	-	nC

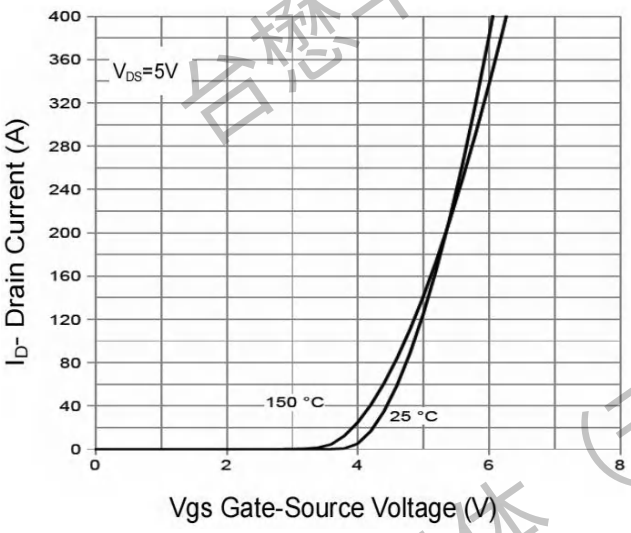
Source-Drain Diode Characteristics at Ta=25°C unless otherwise specified

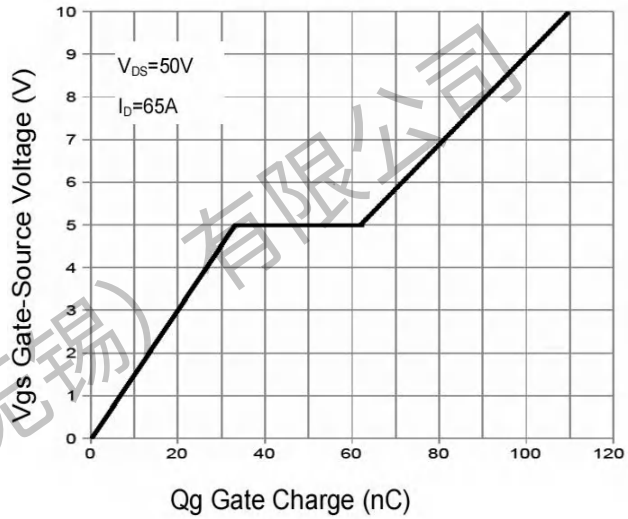
Characteristics	Test Condition	Symbo	Min.	Typ.	Max.	Unit
Maximun Body-Diode Continuous Current		I_S	-	-	130	A
Drain-Source Diode Forward Voltage	VGS=0V , IS=40A , TJ=25℃	V_{SD}	-	0.86	1.2	V
Reverse Recovery Time(Note2)	T_J = 25℃, I_F= 65A di / dt = 100 A/μs	trr	-	70	-	ns
Reverse Recovery Charge(Note2)		Qrr	-	117	-	nC

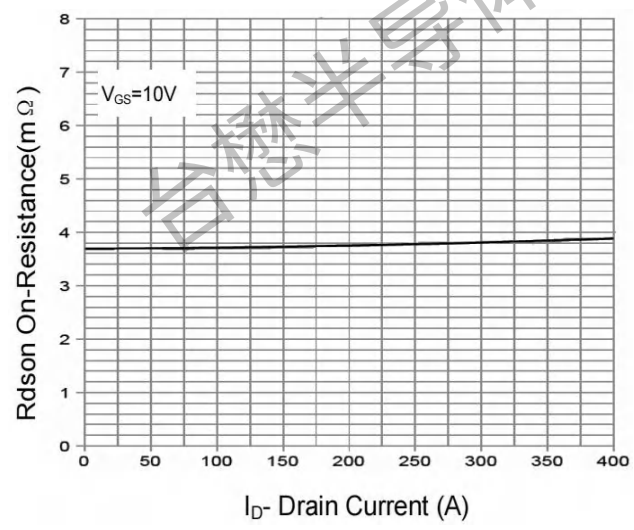
Typical Characteristics: (T_C=25℃ unless otherwise noted)

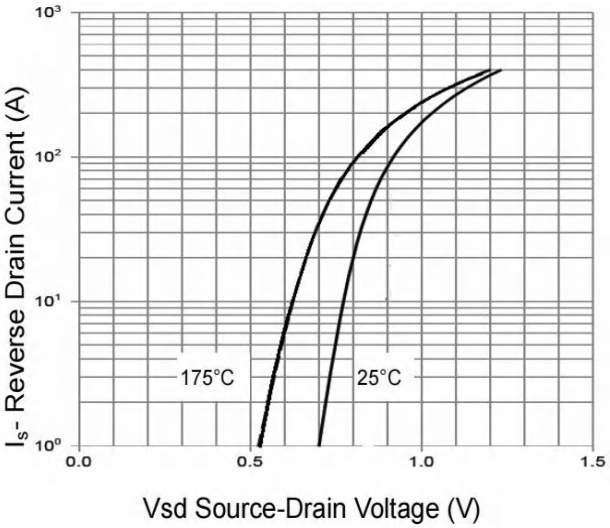


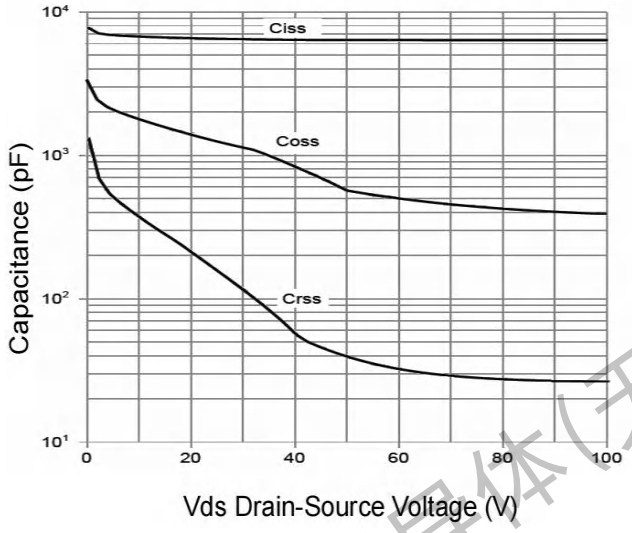


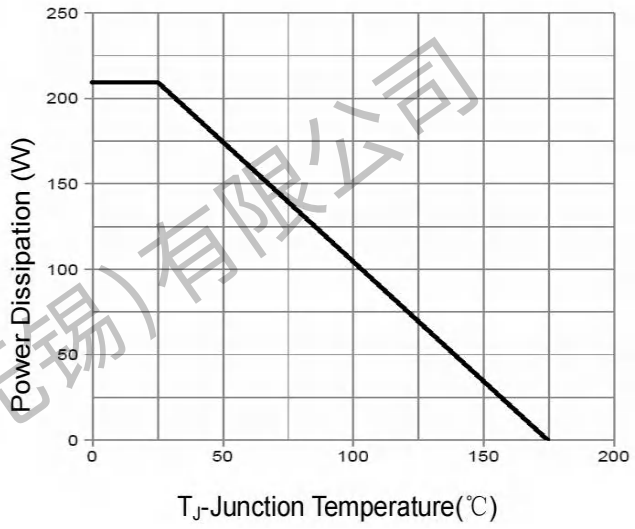


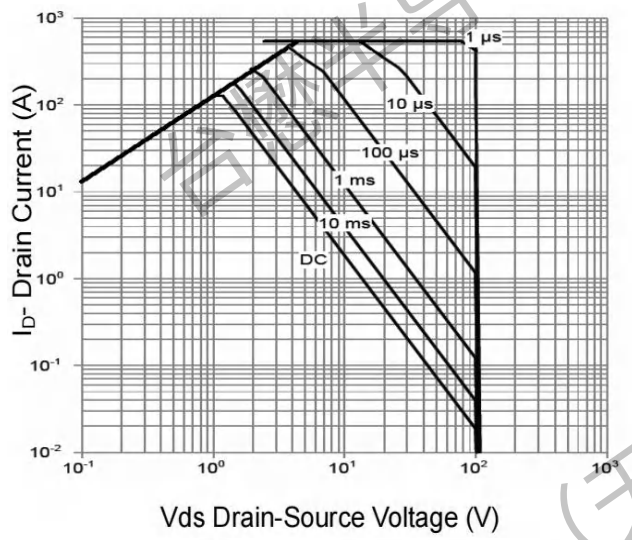


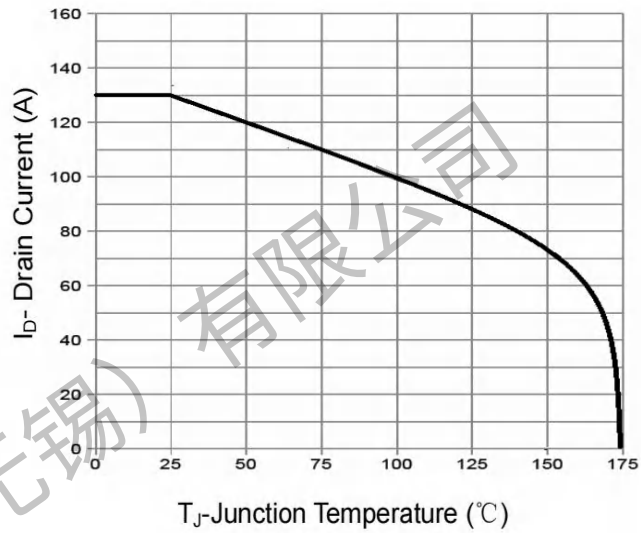


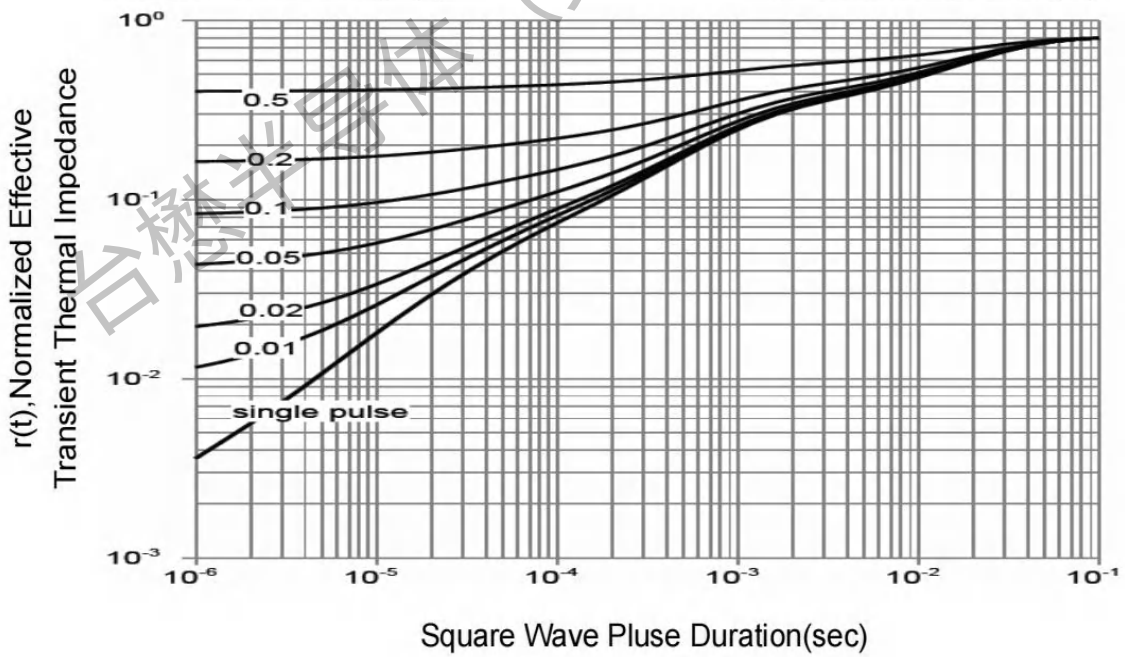




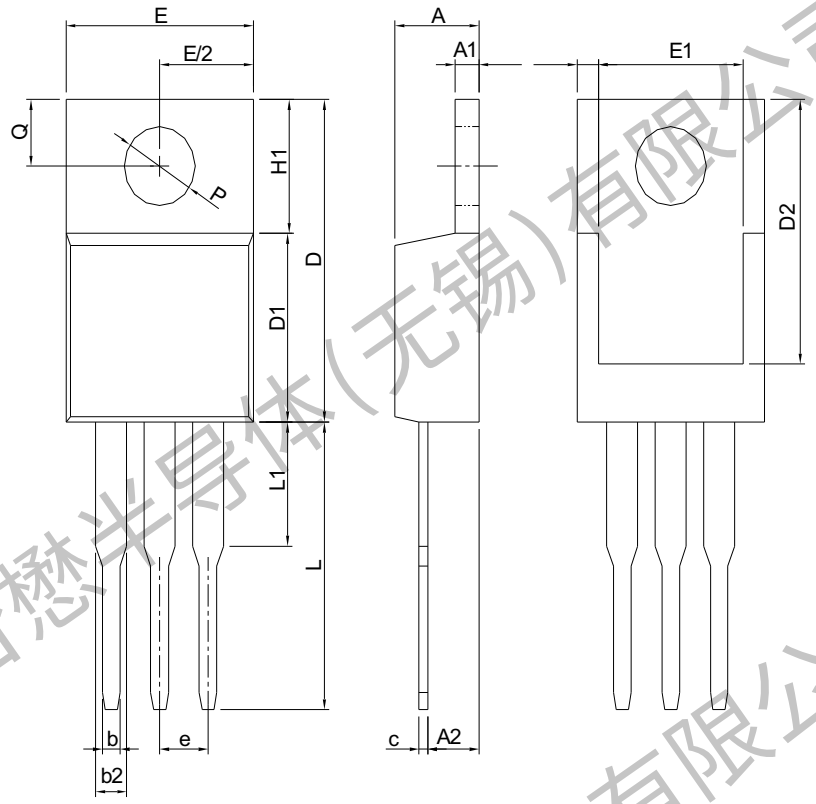








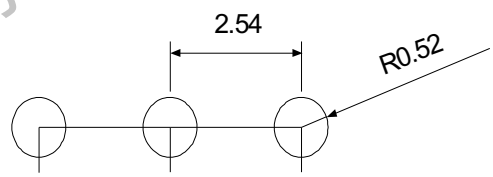
Package Mechanical Data: TO-220AB



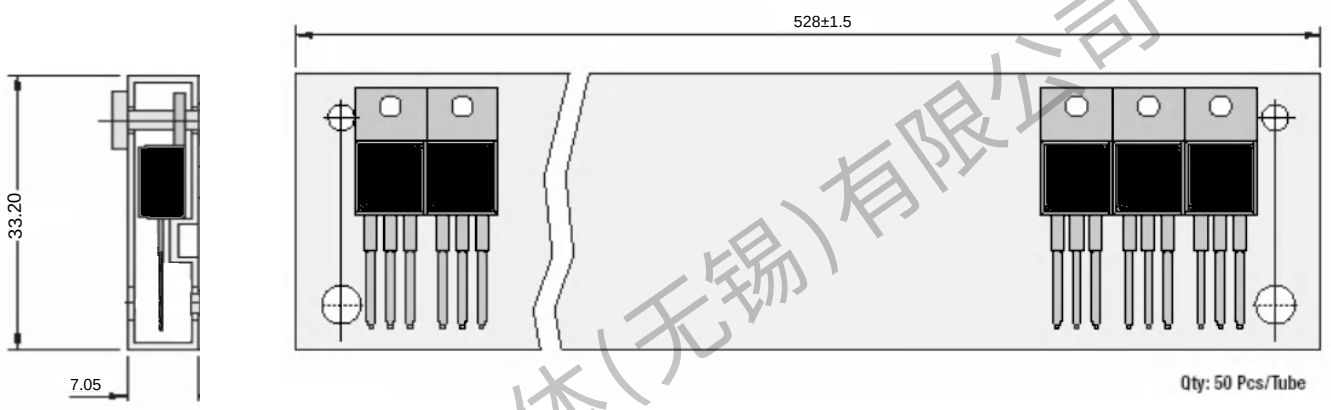
SYMBOL	TO-220			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	3.56	4.83	0.140	0.190
A1	0.51	1.40	0.020	0.055
A2	2.03	2.92	0.080	0.115
b	0.38	1.02	0.015	0.040
b2	1.14	1.78	0.045	0.070
c	0.36	0.61	0.014	0.024
D	14.22	16.51	0.560	0.650
D1	8.38	9.02	0.330	0.355
D2	12.19	13.65	0.480	0.537
E	9.65	10.67	0.380	0.420
E1	6.86	8.89	0.270	0.350
e	2.54 BSC		0.100 BSC	
H1	5.84	6.86	0.230	0.270
L	12.70	14.73	0.500	0.580
L1	-	6.35	-	0.250
P	3.53	4.09	0.139	0.161
Q	2.54	3.43	0.100	0.135

Note: Follow JEDEC TO-220 AB.

RECOMMENDED LAND PATTERN



UNIT: mm

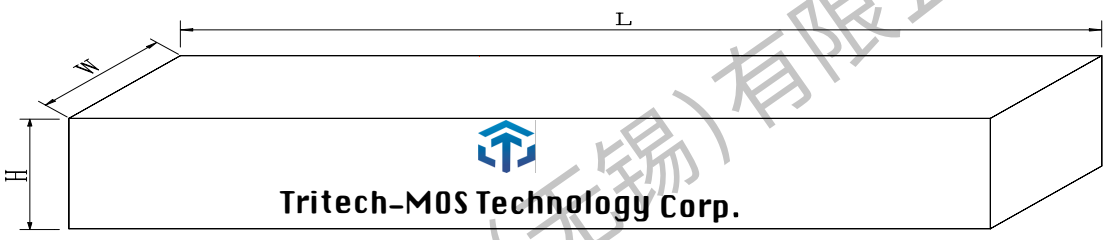


All Dimensions are in mm

1.TO-220AB Packaging

Package	Packing Form	Quantity		
		Tube	Inner Box [kpcs]	Outbox [kpcs]
TO-220AB	Tube Tape	50	5	1

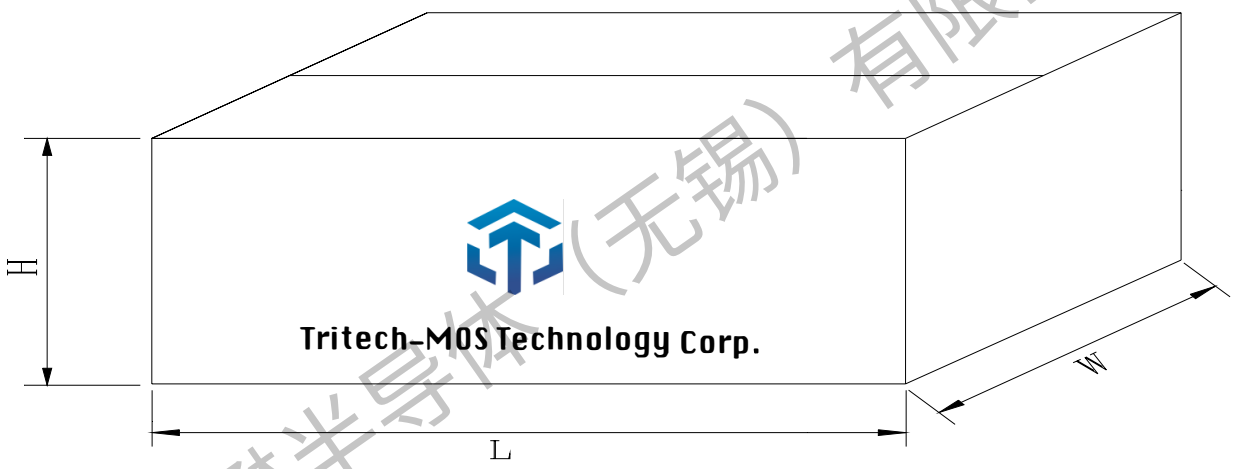
Inner Box



Dimension : 580 (L)×154(W) ×49(H) mm

Quantity : 50 ×20Ea = 1Kpcs

Outer Box



Dimension : 595(L)×285(W) ×185(H) mm

Quantity : 1K×5Ea = 5Kpcs

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Revision history:

Date	Rev	Description	Page
2024.06.08	24.06	Original	