



TMG80P10HMP

P-Channel Enhancement Mosfet

General Description

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

Applications

- Load switch
- PWM

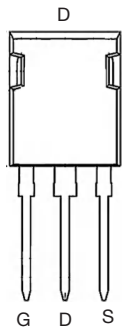
General Features

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

$R_{DS(ON)} = 22 m\Omega (typ.) @ V_{GS} = -10V$

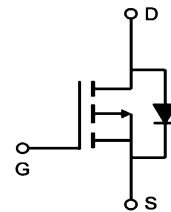
100% UIS Tested

100% R_g Tested



Marking: G80P10

MP:TO-247-3L



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

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	-100	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Continuous Drain Current- $T_C = 25^\circ C$	-80	A
	Continuous Drain Current- $T_C = 100^\circ C$	-41	
I_{DM}	Pulsed Drain Current	-260	
P_D	Power Dissipation	250	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +175	$^\circ C$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance, Junction to Case	0.6	$^\circ C/W$
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	40	

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Electrical Characteristics ($T_J = 25^\circ\text{C}$ unless otherwise specified):

Static Characteristics						
Symbol	Parameter	Test Conditions	Value			Units
			Min.	Typ.	Max.	
V_{DSS}	Drain to Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	-100	--	--	V
I_{DSS}	Drain to Source Leakage Current	$V_{DS} = -100V, V_{GS}=0V$	--	--	1	μA
$I_{GSS(F)}$	Gate to Source Forward Leakage	$V_{GS} = -20V$	--	--	100	nA
$I_{GSS(R)}$	Gate to Source Reverse Leakage	$V_{GS} = +20V$	--	--	-100	nA
$V_{GS(TH)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	-3	-3.5	-4	V
$R_{DS(ON)}$	Drain-to-Source On-Resistance	$V_{GS}=-10V, I_D=-15A$	--	22	25	$m\Omega$

Dynamic Characteristics						
Symbol	Parameter	Test Conditions	Value			Units
			Min.	Typ.	Max.	
C_{iss}	Input Capacitance	$V_{GS}=0V$ $V_{DS}=-50V$ $f=1.0MHz$	--	4200	--	pF
C_{oss}	Output Capacitance		--	536	--	
C_{rss}	Reverse Transfer Capacitance		--	52	--	

Resistive Switching Characteristics						
Symbol	Parameter	Test Conditions	Value			Units
			Min.	Typ.	Max.	
$t_{d(ON)}$	Turn-on Delay Time	$I_D=-15A, R_L=0.75\Omega$ $V_{DS}= -50V$ $V_{GS}= -10V$ $R_G= 3\Omega$	--	13	--	ns
t_r	Rise Time		--	51	--	
$t_{d(OFF)}$	Turn-Off Delay Time		--	177	--	
t_f	Fall Time		--	82	--	
Q_g	Total Gate Charge	$V_{GS}=-10V$	--	76	--	nC
Q_{gs}	Gate Source Charge	$V_{DS}=-50V$	--	13	--	
Q_{gd}	Gate Drain Charge	$I_D=-15A$	--	12.4	--	

Source-Drain Diode Characteristics						
Symbol	Parameter	Test Conditions	Value			Units
			Min.	Typ.	Max.	
I_S	Diode Forward Current	$T_C=25^\circ C$	--	--	-80	A
V_{SD}	Diode Forward Voltage	$I_S=-15A, V_{GS}=0V$	--	--	-1.2	V
t_{rr}	Reverse Recovery time	$I_S=-15A, V_{DD}=-50V$ $dI/dt=100A/\mu s$	--	110	--	ns
Q_{rr}	Reverse Recovery Charge		--	590	--	nC

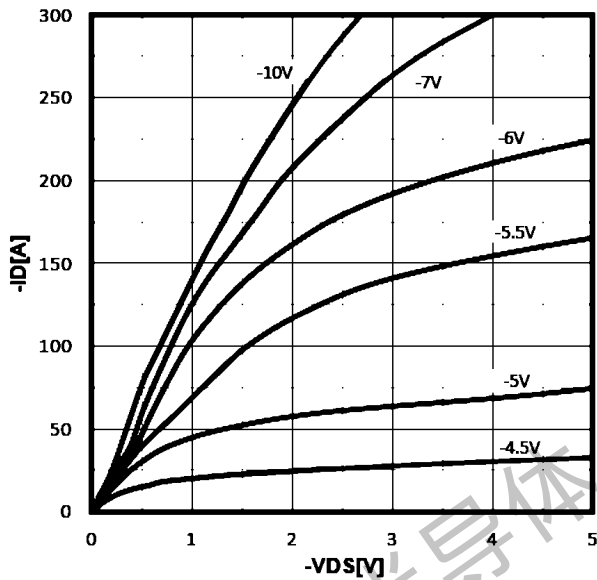


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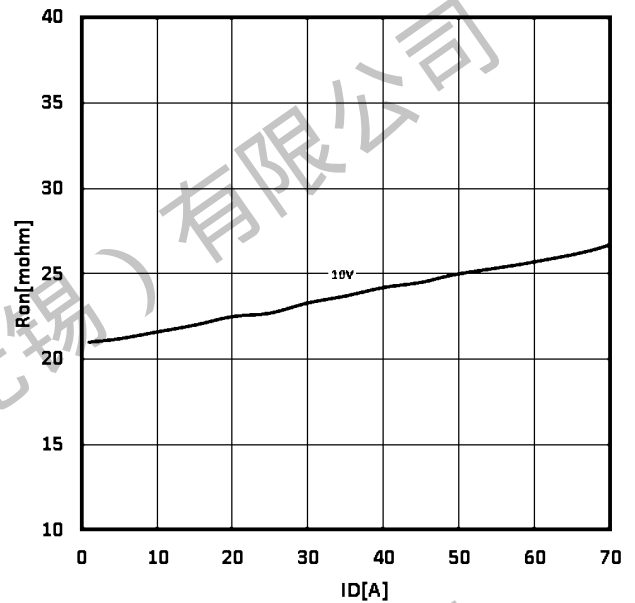
Typ. output characteristics

$$I_D = f(V_{DS})$$



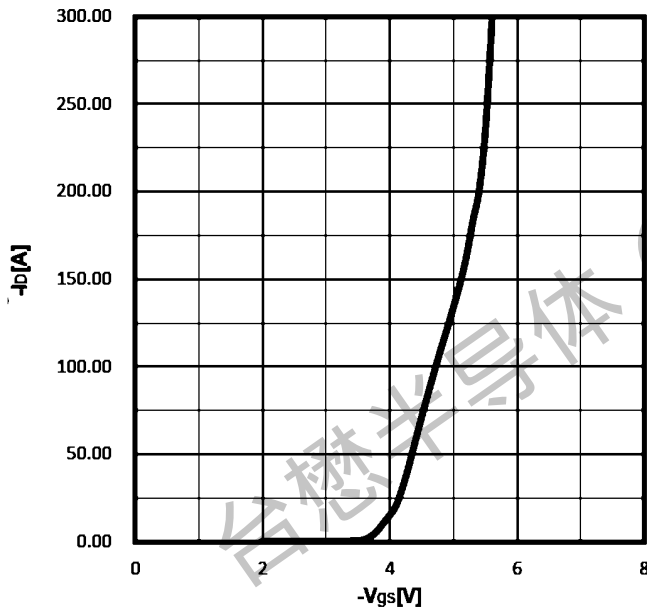
Typ. drain-source on resistance

$$R_{DS(on)} = f(I_D)$$



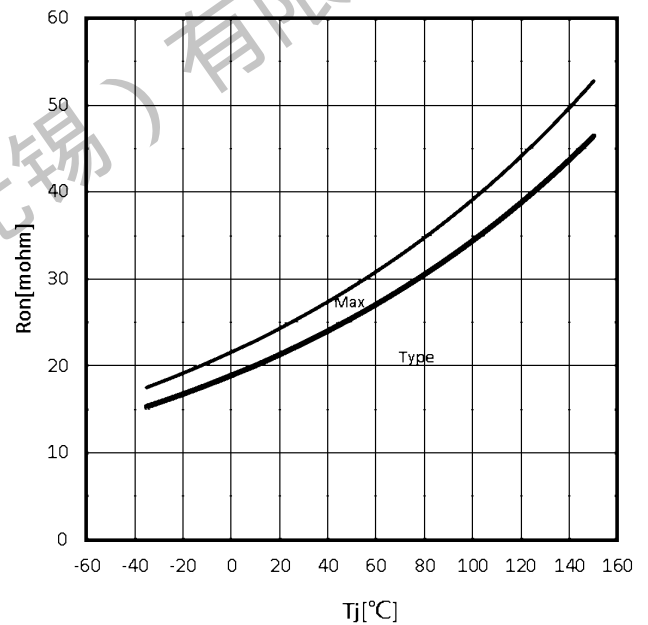
Typ. transfer characteristics

$$I_D = f(V_{GS})$$



Drain-source on-state resistance

$$R_{DS(on)} = f(T_j); I_D = -15A; V_{GS} = -10V$$

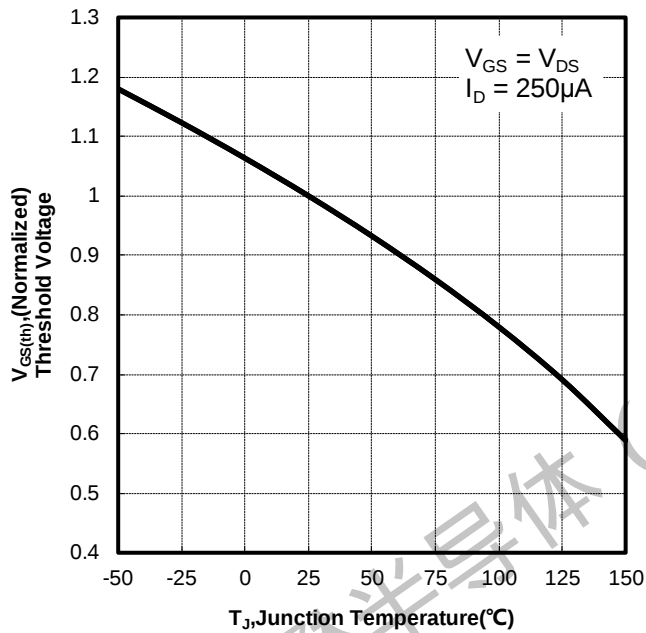




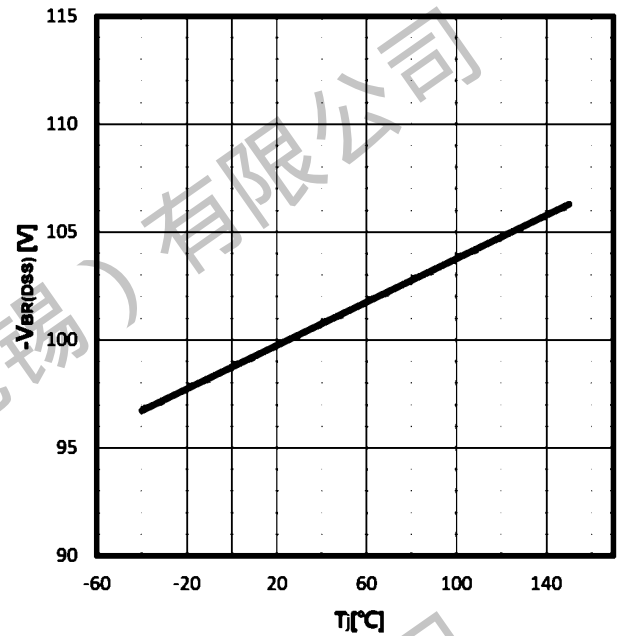
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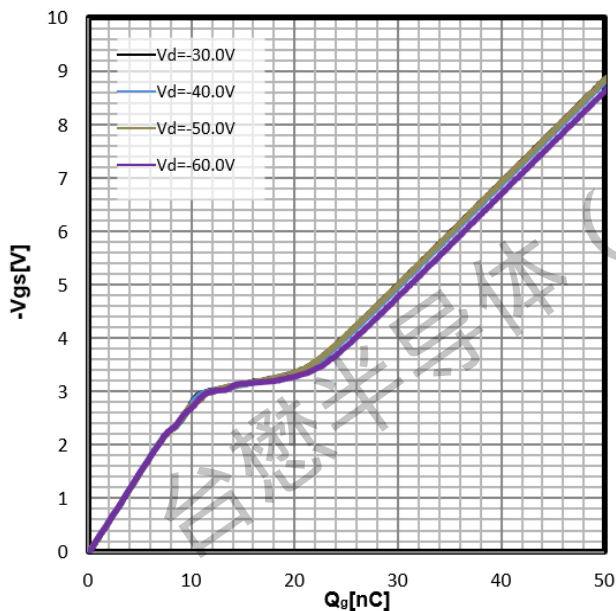
Gate Threshold Voltage
 $-V_{TH}=f(T_j); I_D=-250\mu A$



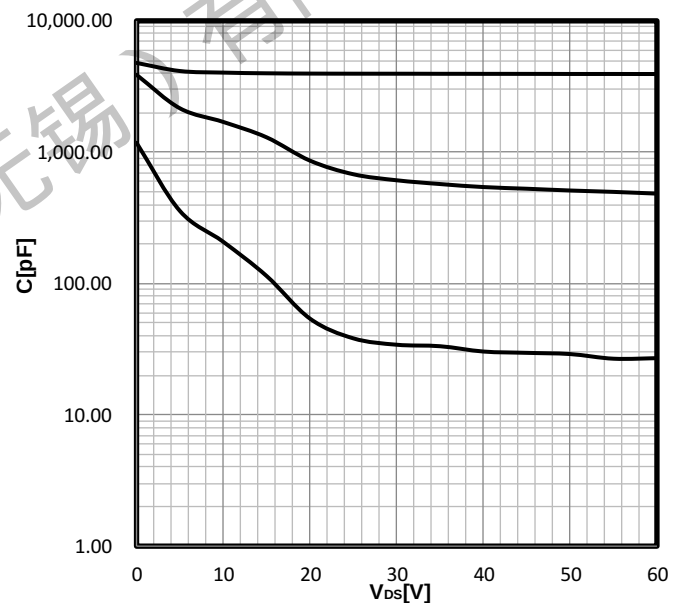
Drain-source breakdown voltage
 $V_{BR(DSS)}=f(T_j); I_D=-250\mu A$



Typ. gate charge
 $V_{GS}=f(Q_{gate}); I_D=-15A$



Typ. capacitances



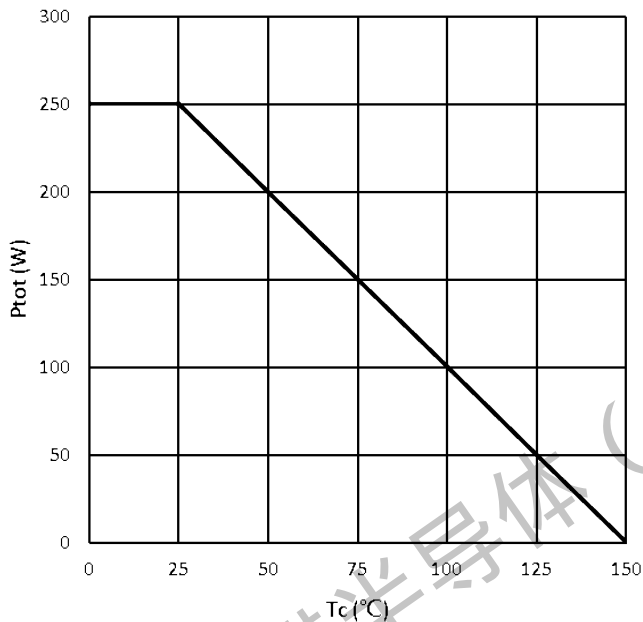


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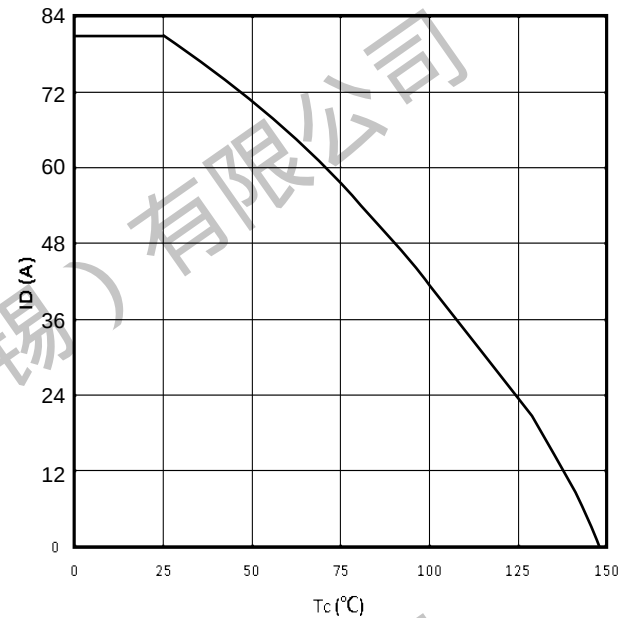
Power Dissipation

$$P_{tot}=f(T_C)$$



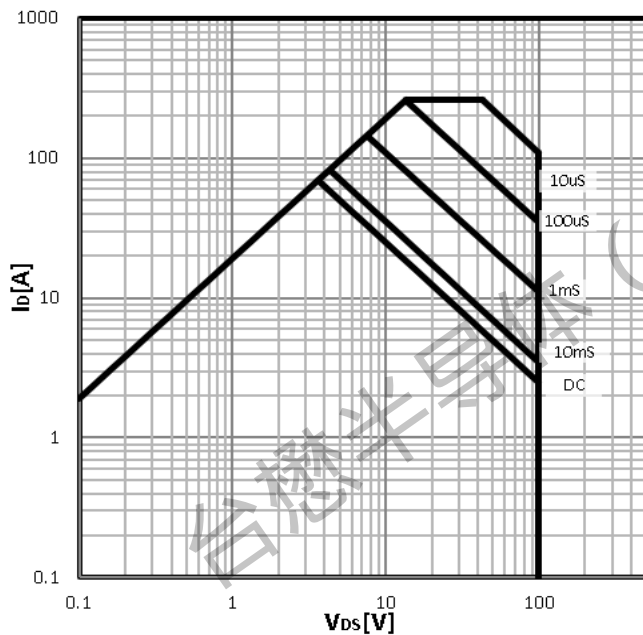
Maximum Drain Current

$$-I_D=f(T_C)$$



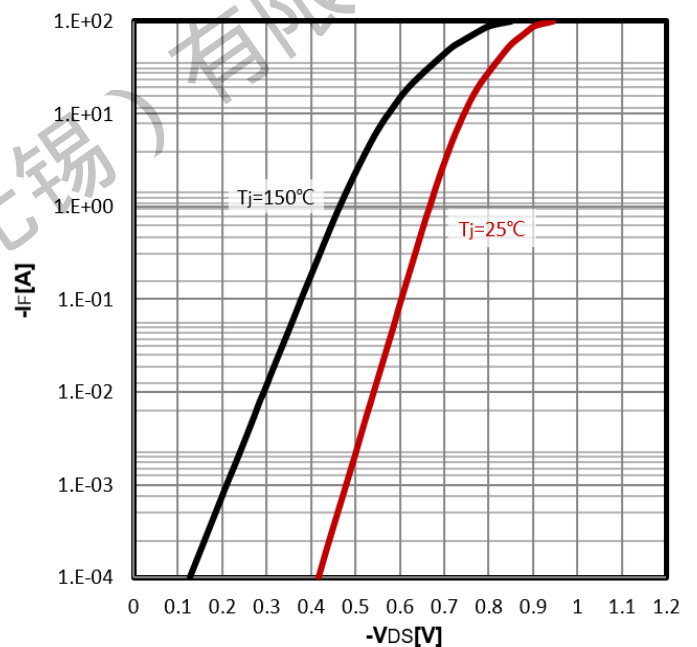
Safe operating area

$$-I_D=f(-V_{DS})$$



Body Diode Forward Voltage Variation

$$-I_F=f(-V_{DS})$$



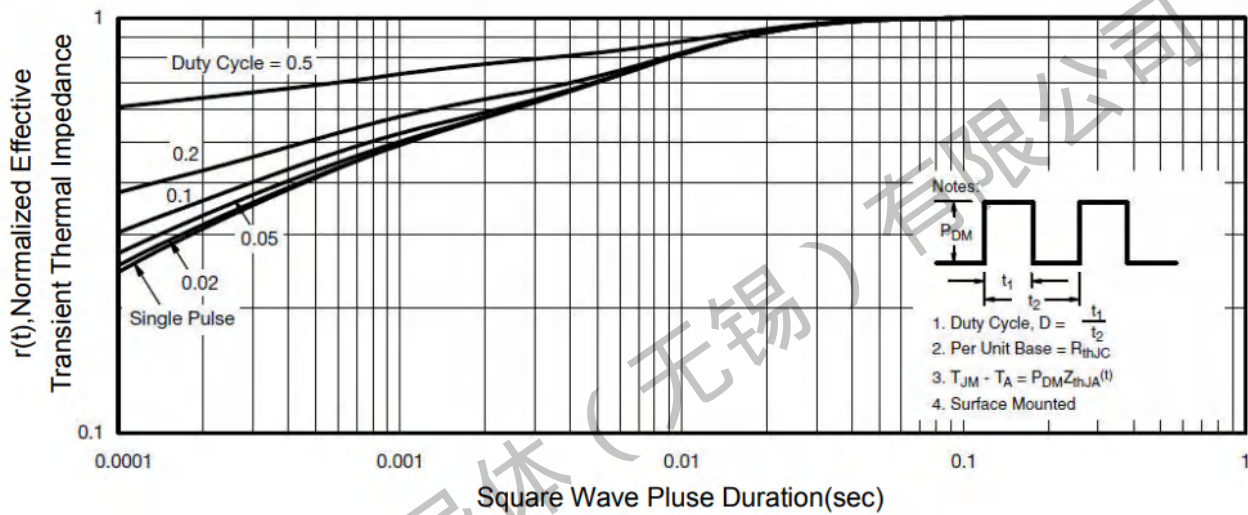


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Max. transient thermal impedance

$$Z_{thJC}=f(t_p)$$

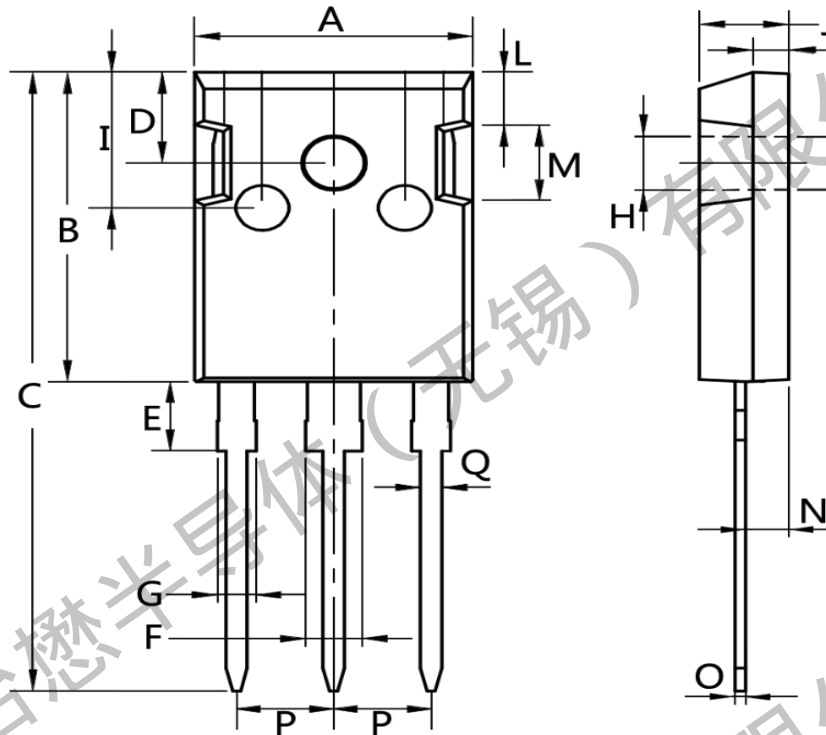




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Package Mechanical Data :TO-247-3L

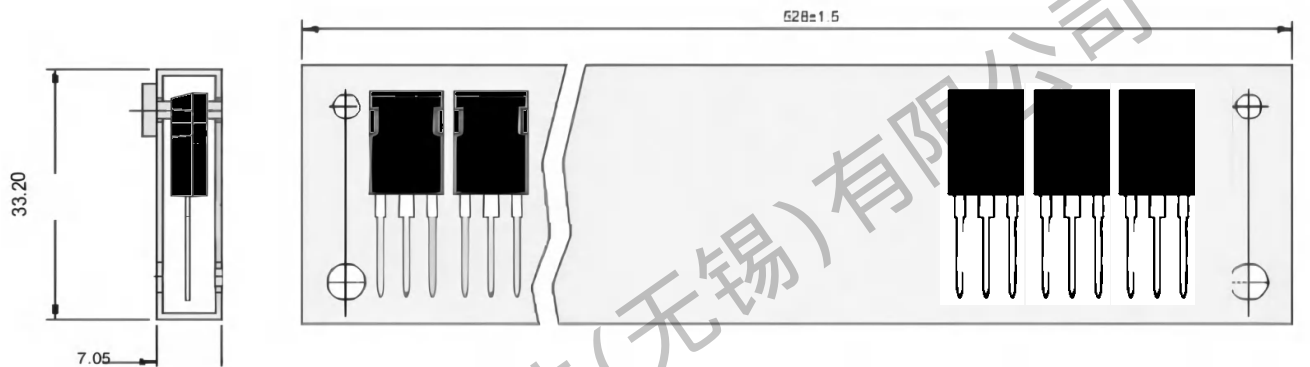


Dim.	Min.	Max.
A	15.0	16.0
B	20.0	21.0
C	41.0	42.0
D	5.0	6.0
E	4.0	5.0
F	2.5	3.5
G	1.75	2.5
H	3.0	3.5
I	8.0	10.0
J	4.9	5.1
K	1.9	2.1
L	3.5	4.0
M	4.75	5.25
N	2.0	3.0
O	0.55	0.75
P	Typ 5.08	
Q	1.2	1.3



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All Dimensions are in mm

1.TO-247-3L Packaging

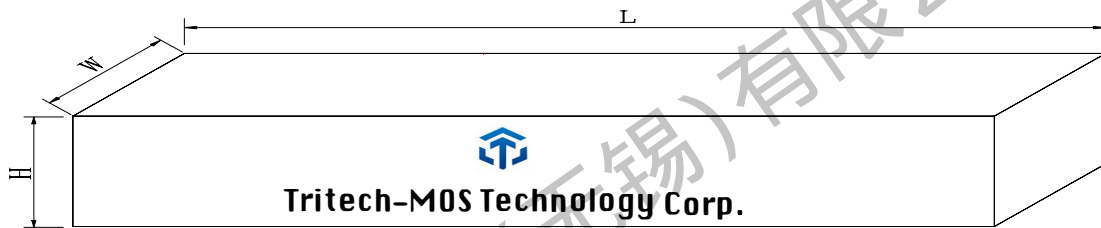
Package	Packing Form	Quantity		
		Tube	Inner Box [kpcs]	Outbox [kpcs]
TO-247-3L	Tube Tape	30	5	1



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Inner Box



Dimension : 580 (L)×154(W) ×49(H) mm

Quantity : 30 ×15Ea = 450pcs Or 30 ×20Ea = 600pcs

Outer Box



Dimension : 595(L)×285(W) ×185(H) mm

Quantity : 450×5Ea = 2250pcs Or 600 ×5Ea = 3000pcs



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Revision history:

Date	Rev	Description	Page
2023.08.01	23.08	Original	