

# TMG260N10HT

## N-Channel Enhancement Mosfet

### General Description

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

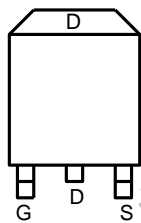
### Applications

- Load switch
- PWM

### General Features

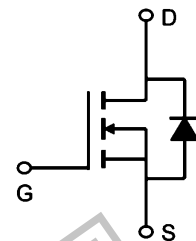
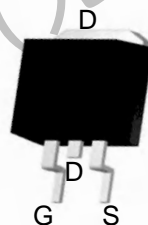
$V_{DS} = 100V$   $I_D = 260A$   
 $R_{DS(ON)} = 2.0m\Omega$  (typ.) @  $V_{GS} = 10V$

100% UIS Tested  
 100%  $R_g$  Tested



Marking: G260N10

T:TO-263-3L



### 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	$\pm 20$	V
$I_D @ T_C = 25^\circ C$	Continuous Drain Current, $V_{GS} @ 10V$	260	A
$I_D @ T_C = 100^\circ C$	Continuous Drain Current, $V_{GS} @ 10V$	163	A
$I_{DM}$	Pulsed Drain Current	1028	A
EAS	Single Pulse Avalanche Energy	583	mJ
$P_D @ T_C = 25^\circ C$	Total Power Dissipation	379	W
$T_{STG}$	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	---	59	$^\circ C/W$
$R_{\theta JC}$	Thermal Resistance Junction-Case	---	---	$^\circ C/W$

**TMG260N10HT**

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**Electrical Characteristics (T<sub>J</sub>=25 °C, unless otherwise noted)**

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	<b>V<sub>(BR)DSS</sub></b>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA	100	-	-	V
Gate-body Leakage current	<b>I<sub>GSS</sub></b>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = ±20V	-	-	±100	nA
Zero Gate Voltage Drain Current	<b>I<sub>DSS</sub></b>	V <sub>DS</sub> = 100V, V <sub>GS</sub> = 0V	T <sub>J</sub> =25°C	-	1	μA
			T <sub>J</sub> =100°C	-	100	
Gate-Threshold Voltage	<b>V<sub>GS(th)</sub></b>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	2	3	4	V
Drain-Source on-Resistance <sup>4</sup>	<b>R<sub>DS(on)</sub></b>	V <sub>GS</sub> = 10V, I <sub>D</sub> = 20A	-	2.0	2.9	mΩ
Forward Transconductance <sup>4</sup>	<b>g<sub>fs</sub></b>	V <sub>DS</sub> =10V, I <sub>D</sub> =20A	-	76	-	S
<b>Dynamic Characteristics<sup>5</sup></b>						
Input Capacitance	<b>C<sub>iss</sub></b>	V <sub>DS</sub> = 50V, V <sub>GS</sub> = 0V, f = 1MHz	-	9030	-	pF
Output Capacitance	<b>C<sub>oss</sub></b>		-	1505	-	
Reverse Transfer Capacitance	<b>C<sub>rss</sub></b>		-	40	-	
Gate Resistance	<b>R<sub>g</sub></b>	f = 1MHz	-	2.3	-	Ω
<b>Switching Characteristics<sup>5</sup></b>						
Total Gate Charge	<b>Q<sub>g</sub></b>	V <sub>GS</sub> = 10V, V <sub>DS</sub> = 50V, I <sub>D</sub> =20A	-	150	-	nC
Gate-Source Charge	<b>Q<sub>gs</sub></b>		-	32.5	-	
Gate-Drain Charge	<b>Q<sub>gd</sub></b>		-	49	-	
Turn-on Delay Time	<b>t<sub>d(on)</sub></b>	V <sub>GS</sub> = 10V, V <sub>DD</sub> = 50V, R <sub>G</sub> = 3Ω, I <sub>D</sub> = 20A	-	27	-	ns
Rise Time	<b>t<sub>r</sub></b>		-	78.5	-	
Turn-off Delay Time	<b>t<sub>d(off)</sub></b>		-	110	-	
Fall Time	<b>t<sub>f</sub></b>		-	86	-	
Body Diode Reverse Recovery Time	<b>t<sub>rr</sub></b>	I <sub>F</sub> = 20A, dI/dt=100A/μs	-	88	-	ns
Body Diode Reverse Recovery Charge	<b>Q<sub>rr</sub></b>		-	220	-	nC
<b>Drain-Source Body Diode Characteristics</b>						
Diode Forward Voltage <sup>4</sup>	<b>V<sub>SD</sub></b>	I <sub>D</sub> = 20A, V <sub>GS</sub> = 0V	-	-	1.2	V
Continuous Source Current	<b>I<sub>S</sub></b>	T <sub>C</sub> =25°C	-	-	260	A



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### Typical Characteristics

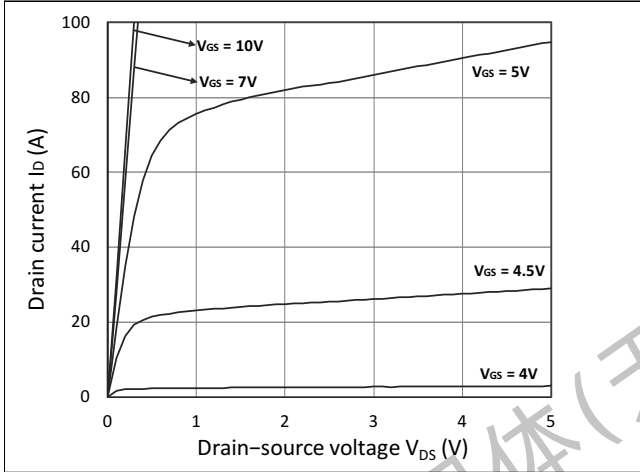


Figure 1. Output Characteristics

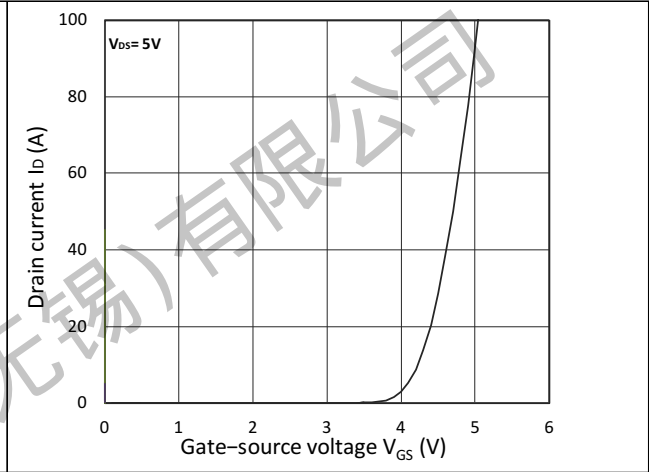


Figure 2. Transfer Characteristics

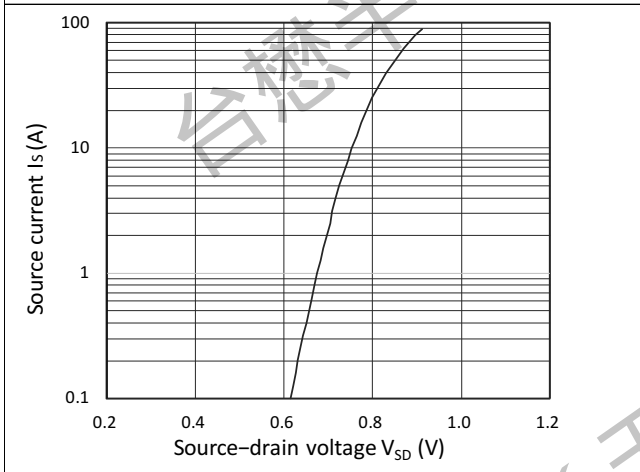


Figure 3. Forward Characteristics of Reverse

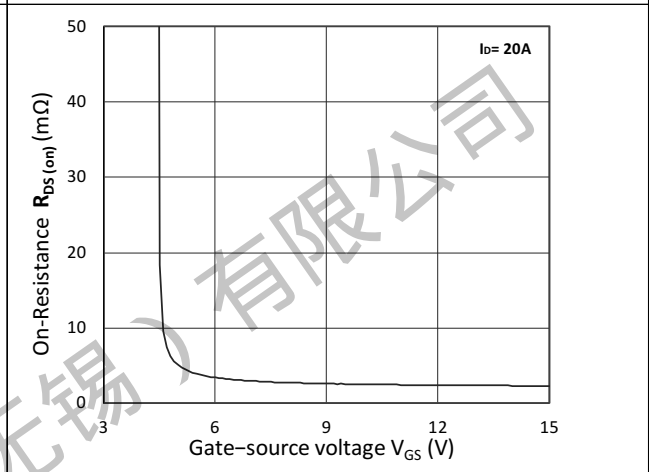


Figure 4.  $R_{DS(ON)}$  vs.  $V_{GS}$

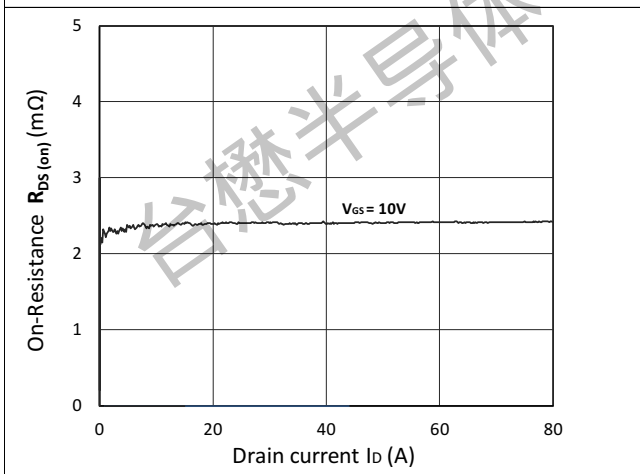


Figure 5.  $R_{DS(ON)}$  vs.  $I_D$

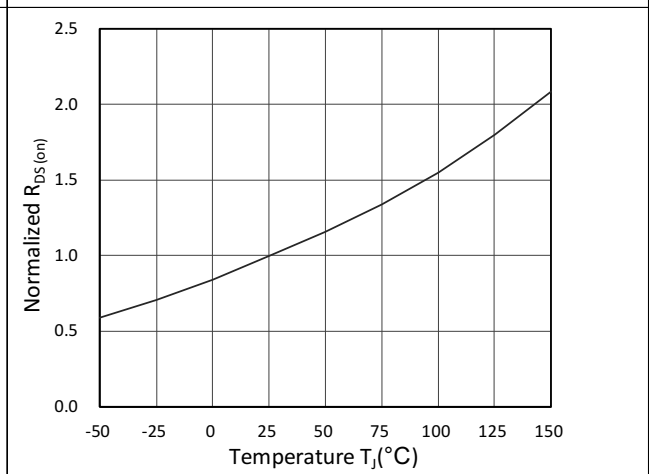


Figure 6. Normalized  $R_{DS(ON)}$  vs. Temperature

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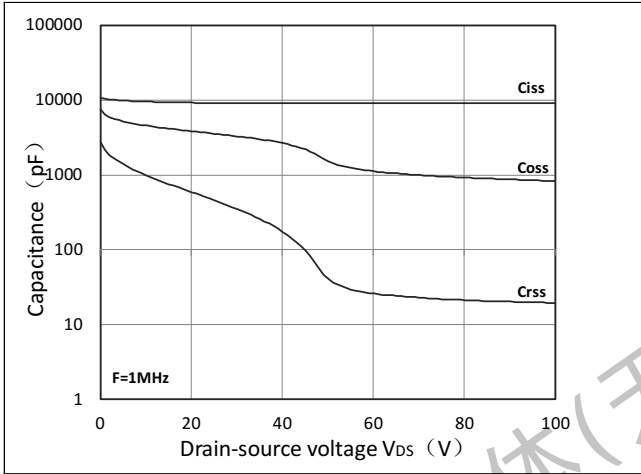


Figure 7. Capacitance Characteristics

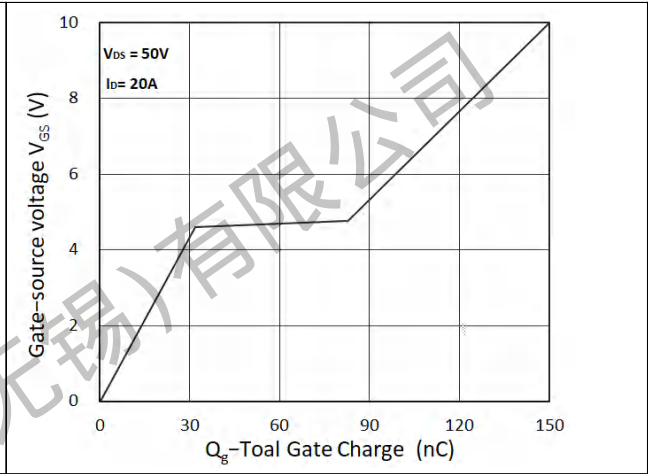


Figure 8. Gate Charge Characteristics

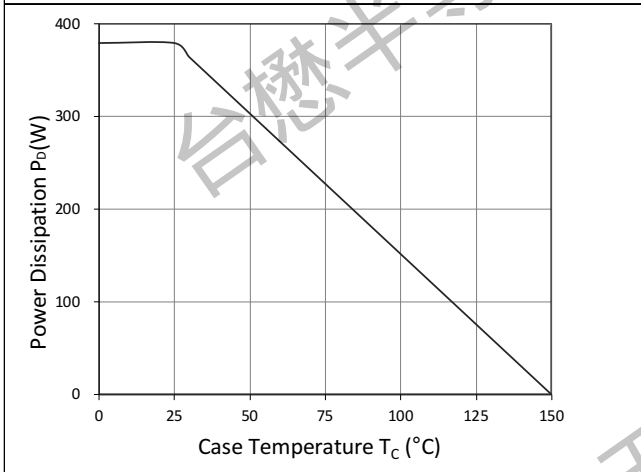


Figure 9. Power Dissipation

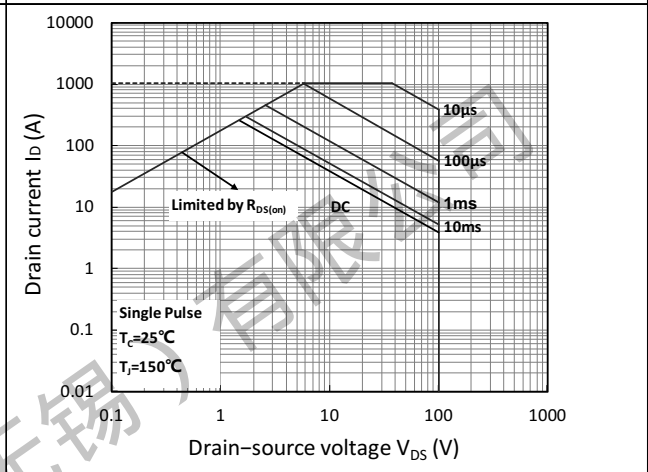


Figure 10. Safe Operating Area

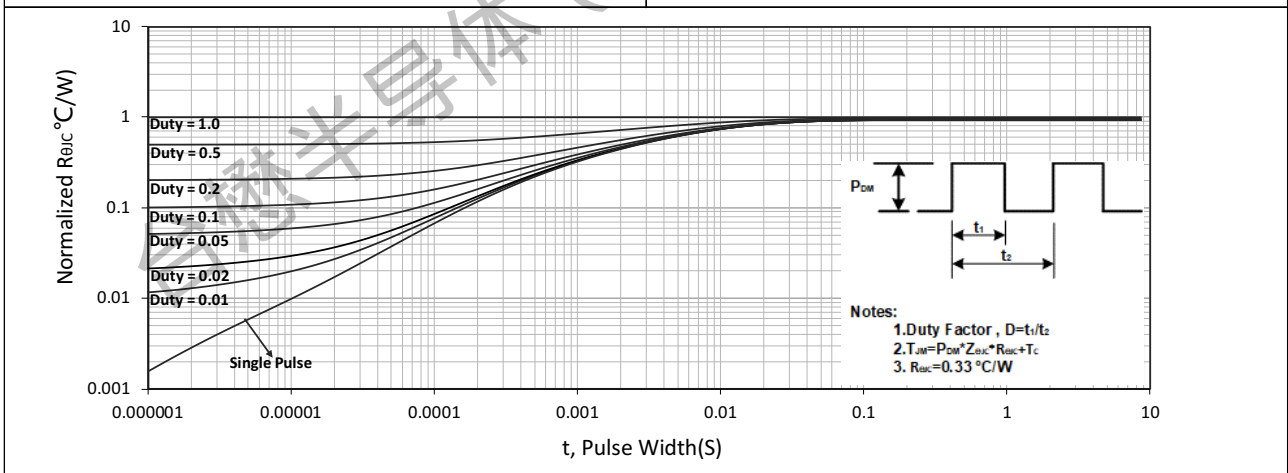
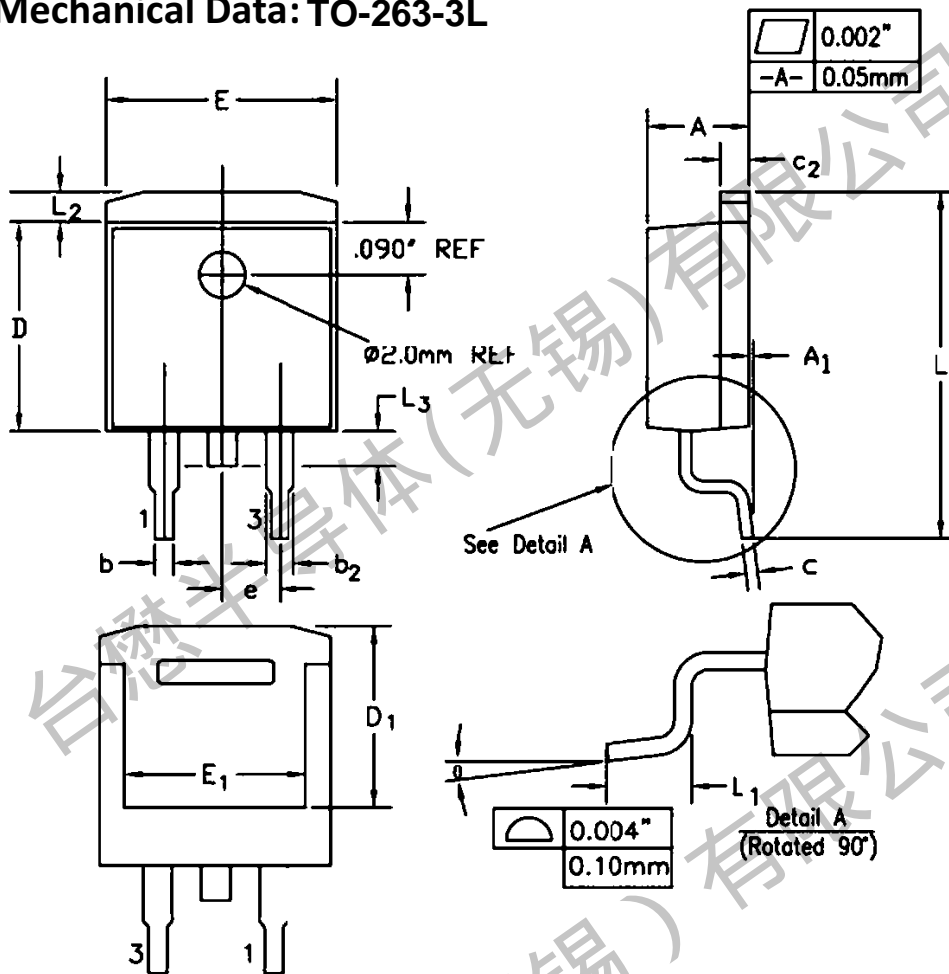


Figure 11. Normalized Maximum Transient Thermal Impedance

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Package Mechanical Data: TO-263-3L



SYMBOL	INCHES		MILLIMETERS		NOTES
	MIN	MAX	MIN	MAX	
A	0.170	0.180	4.32	4.57	
A1	-	0.010	-	0.25	
b	0.028	0.037	0.71	0.94	
b2	0.045	0.055	1.15	1.40	
c	0.018	0.024	0.46	0.61	
c2	0.048	0.055	1.22	1.40	
D	0.350	0.370	8.89	9.40	
D1	0.315	0.324	8.01	8.23	
E	0.395	0.405	10.04	10.28	
E1	0.310	0.318	7.88	8.08	
e	0.100 BSC.		2.54 BSC.		
L	0.580	0.620	14.73	15.75	
L1	0.090	0.110	2.29	2.79	
L2	0.045	0.055	1.15	1.39	
L3	0.050	0.070	1.27	1.77	
$\theta$	0°	8°	0°	8°	

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Revision history:

Date	Rev	Description	Page
2023.05.31	23.05	Original	