
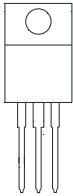


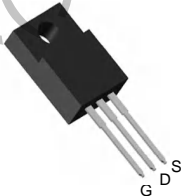
TMG130N085F

N-Channel Enhancement Mosfet

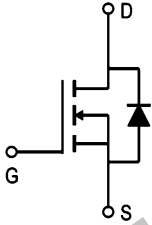
<p>General Description</p> <ul style="list-style-type: none"> • Low $R_{DS(ON)}$ • RoHS and Halogen-Free Compliant <p>Applications</p> <ul style="list-style-type: none"> • Load switch • PWM 	<p>General Features</p> <p>$V_{DS} = 85V$ $I_D = 130A$ $R_{DS(ON)} = 4.1m\Omega$ (typ.) @ $V_{GS} = 10V$</p> <p>100% UIS Tested 100% R_g Tested</p> 
--	---



Marking: G130N085



F:TO-220F



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

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	85	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D @ T_c = 25^\circ C$	Continuous Drain Current, $V_{GS} @ 10V$	130	A
I_{DM}	Pulsed Drain Current	465	A
EAS	Single Pulse Avalanche Energy	500	mJ
P_D	Total Power Dissipation	208	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	---	45	$^\circ C/W$
$R_{\theta JC}$	Thermal Resistance Junction-Case	---	0.6	$^\circ C/W$

TMG130N085F

N-Channel Enhancement Mosfet

Electrical Characteristics (TA= 25°C unless otherwise specified):

Characteristics	Test Condition	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS} = 0V, I_D = 250 \mu A$	BV_{DSS}	85	-	-	V
Drain-Source Leakage Current	$V_{DS} = 80V, V_{GS} = 0V$	I_{DSS}	-	-	1	μA
Gate Leakage Current	$V_{GS} = \pm 20V, V_{DS} = 0V$	I_{GSS}	-	-	± 100	nA
Gate-Source Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250 \mu A$	$V_{GS(th)}$	2	3	4	V
Drain-Source On-State Resistance (Note 3)	$V_{GS} = 10V, I_D = 20A$	$R_{DS(on)}$	-	4.1	5.0	m Ω
Forward Transconductance	$V_{DS} = 5V, I_D = 20A$	gfs	-	31	-	S
Gate Resistance	$V_{GS} = 0V, V_{DS} = 0V, f = 1MHz$	RG	-	1.9	-	Ω
Input Capacitance	$V_{DS} = 40V, V_{GS} = 0V, f = 1MHz$	C_{iss}	-	4010	-	pF
Output Capacitance		C_{oss}	-	1264	-	pF
Reverse Transfer Capacitance		C_{rss}	-	46	-	pF
Turn-on Delay Time(Note2)	$V_{GS} = 10V, V_{DS} = 40V, RL = 2.0\Omega, R_{GEN} = 3\Omega$	$t_{d(ON)}$	-	17.6	-	ns
Rise Time(Note2)		t_r	-	27	-	ns
Turn-Off Delay Time(Note2)		$t_{d(OFF)}$	-	31	-	ns
Fall Time(Note2)		t_f	-	10.8	-	ns
Total Gate Charge(Note2)	$V_{DS} = 40V, V_{GS} = 10V, I_D = 20A$	Q_G	-	56	-	nC
Gate to Source Charge(Note2)		Q_{GS}	-	18.3	-	nC
Gate to Drain Charge(Note2)		Q_{GD}	-	15	-	nC

Characteristics	Test Condition	Symbo	Min.	Typ.	Max.	
Maximun Body-Diode Continuous Current		I_S	-	-	130	A
Drain-Source Diode Forward Voltage	$V_{GS} = 0V, I_S = 1A, T_J = 25^\circ C$	V_{SD}	-	0.7	1.0	V
Reverse Recovery Time(Note2)	$T_J = 25^\circ C, I_F = 20A, di/dt = 100 A/\mu s$	trr	-	58	-	ns
Reverse Recovery Charge(Note2)		Qrr	-	95	-	nC

TMG130N085F

N-Channel Enhancement Mosfet

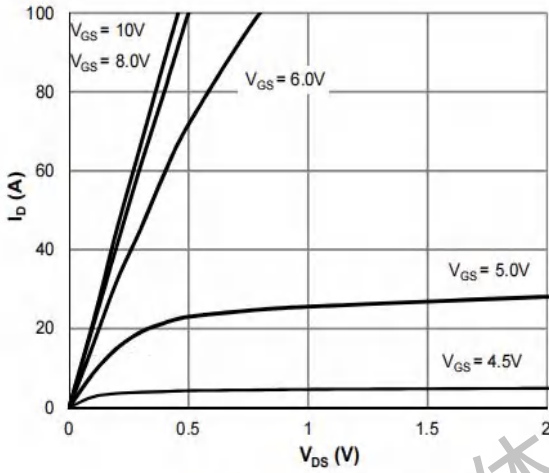


Figure 1: Saturation Characteristics

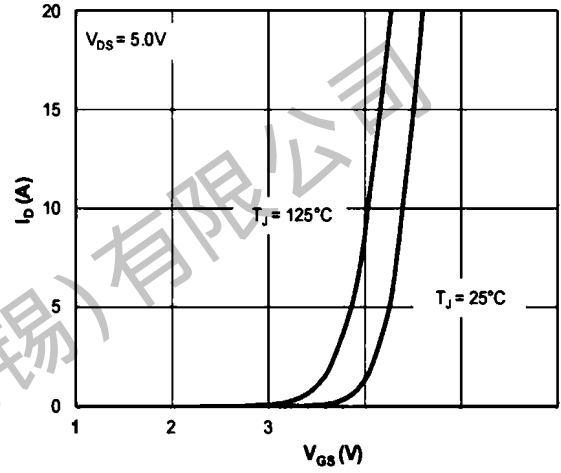


Figure 2: Transfer Characteristics

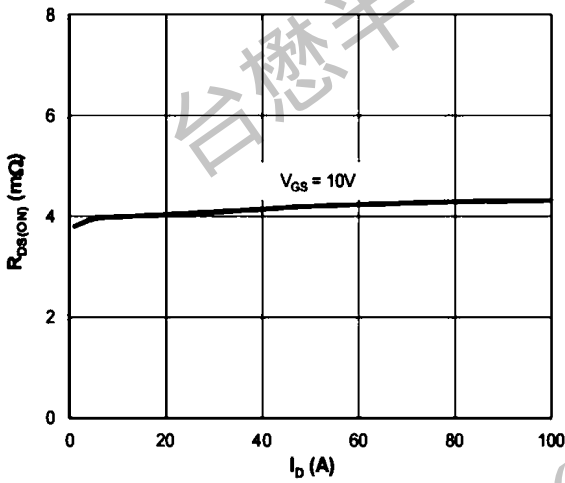


Figure 3: $R_{DS(on)}$ vs. Drain Current

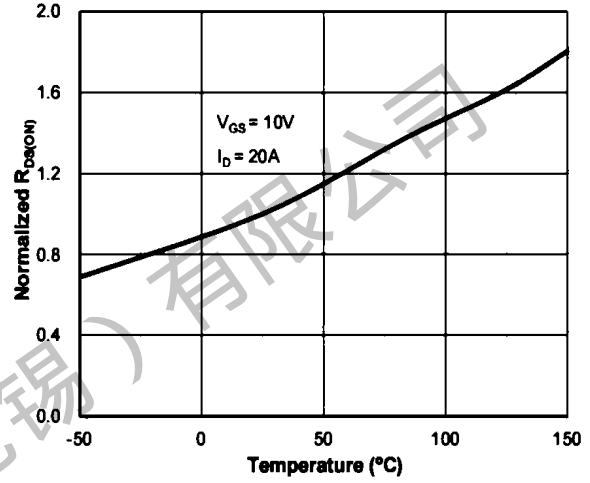


Figure 4: $R_{DS(on)}$ vs. Junction Temperature

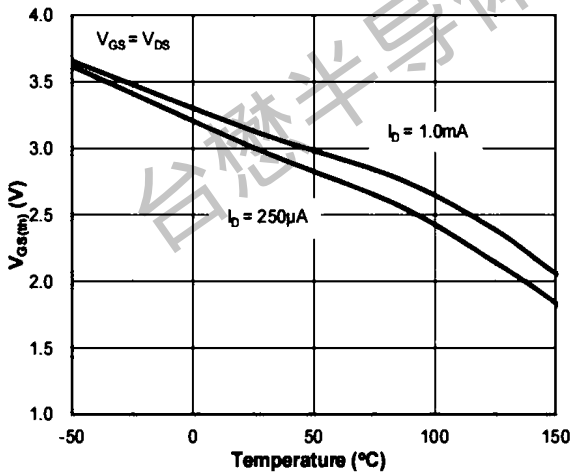


Figure 5: $V_{GS(th)}$ vs. Junction Temperature

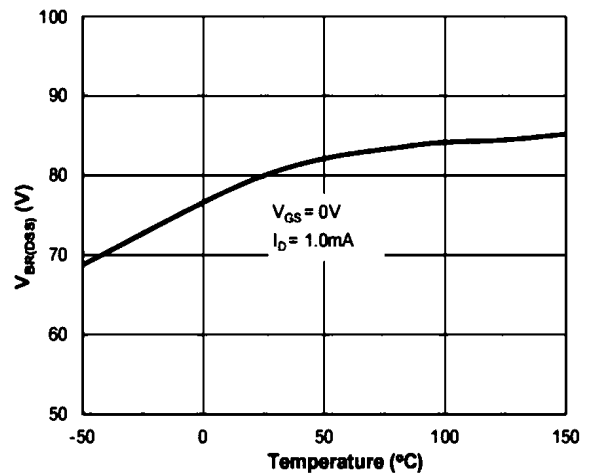


Figure 6: $V_{BR(DSS)}$ vs. Junction Temperature

TMG130N085F

N-Channel Enhancement Mosfet

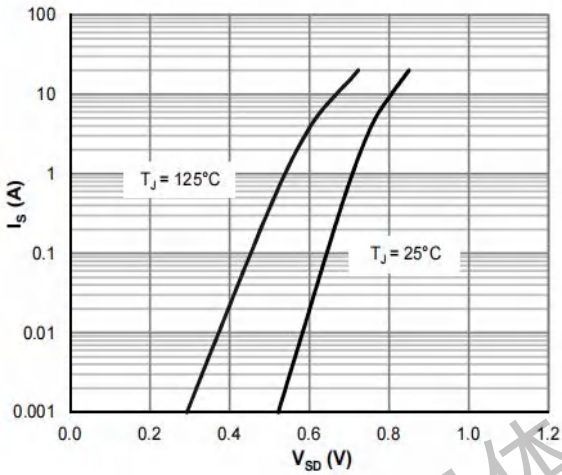


Figure 7: Body-Diode Characteristics

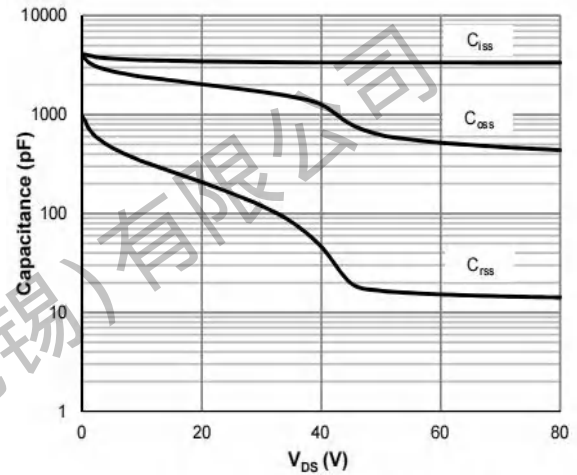


Figure 8: Capacitance Characteristics

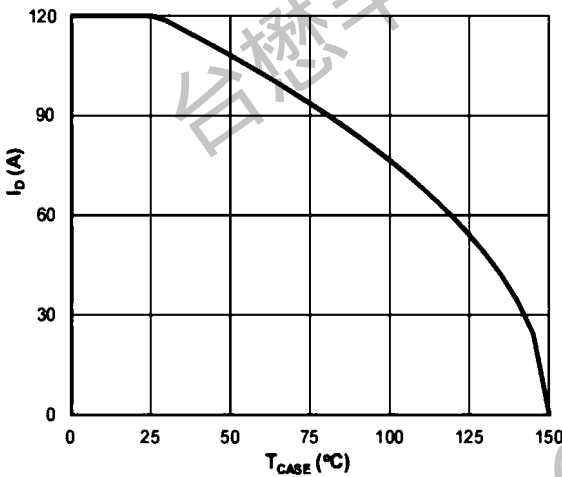


Figure 9: Current De-rating

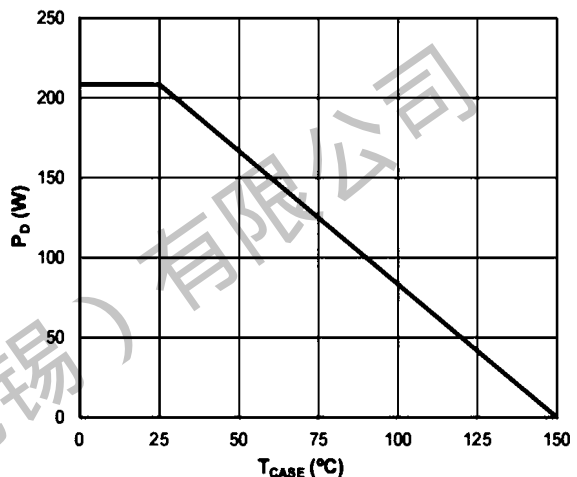


Figure 10: Power De-rating

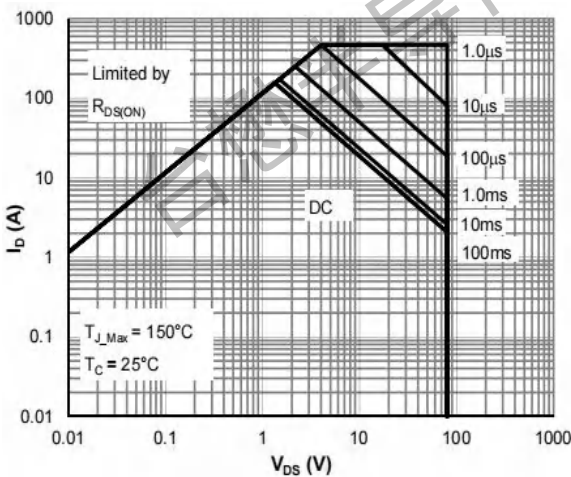


Figure 11: Maximum Safe Operating Area

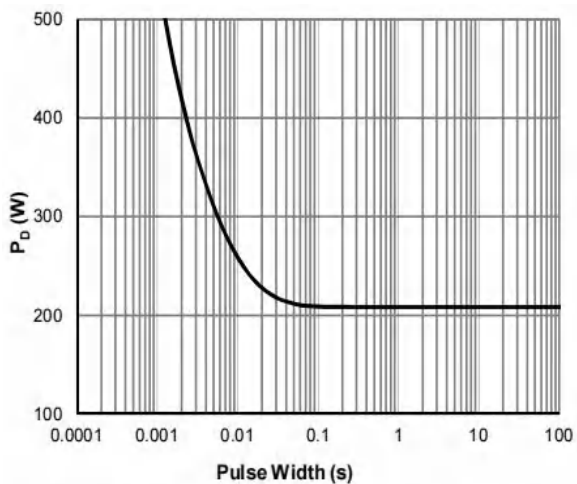
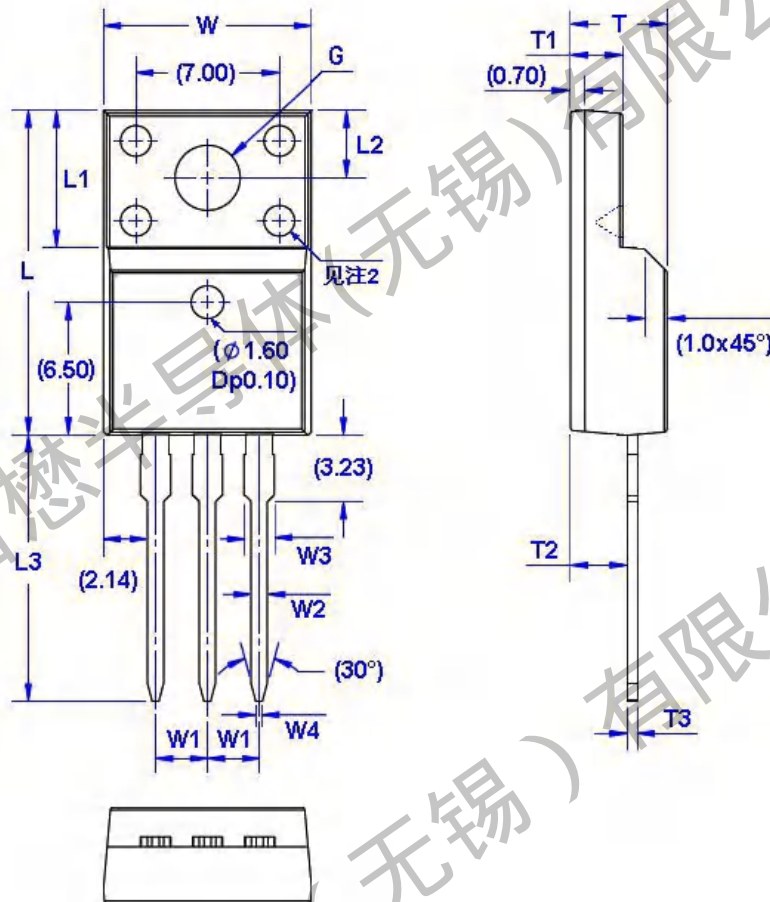


Figure 12: Single Pulse Power Rating, Junction-to-Case

TMG130N085F

N-Channel Enhancement Mosfet

Package Mechanical Data: TO-220F

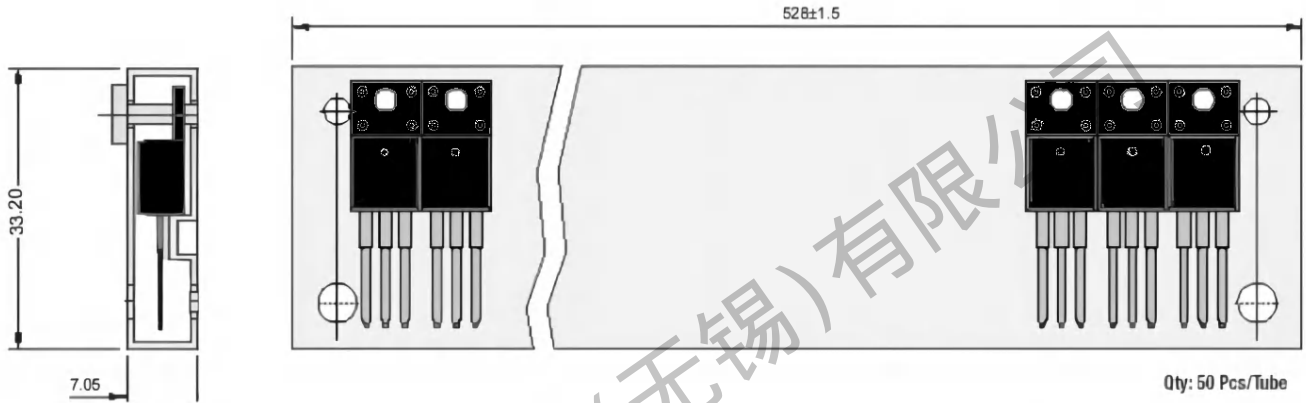


Symbol	Size		Symbol	Size		Symbol	Size		Symbol	Size	
	Min	Max		Min	Max		Min	Max		Min	Max
W	9.96	10.36	W4	0.25	0.45	L3	12.78	13.18	T3	0.45	0.60
W1	2.54 (TYP)		L	15.67	16.07	T	4.50	4.90	G(Φ)	3.08	3.28
W2	0.70	0.90	L1	6.48	6.88	T1	2.34	2.74			
W3	1.24	1.47	L2	3.20	3.40	T2	2.56	2.96			



TMG130N085F

N-Channel Enhancement Mosfet



All Dimensions are in mm

1.TO-220F Packaging

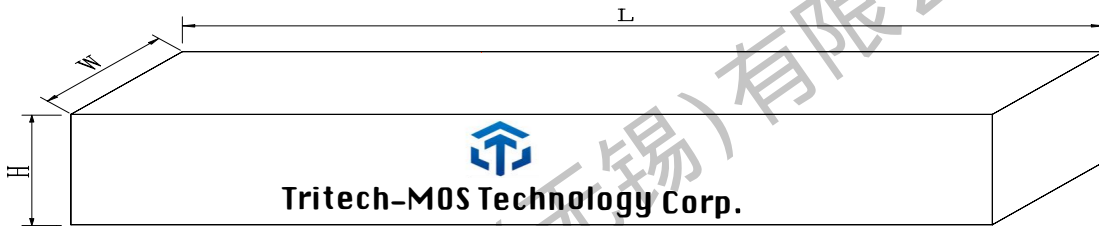
Package	Packing Form	Quantity		
		Tube	Inner Box [kpcs]	Outbox [kpcs]
TO-220F	Tube Tape	50	5	1



TMG130N085F

N-Channel Enhancement Mosfet

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

Important Notices and Disclaimers

- Tritech-MOS Technology Corp. reserves the right to change this document, its products, and specifications at any time without prior notice.
- Before final design, purchase, or use, customers should obtain and confirm the latest product information and specifications.
- Tritech-MOS Technology Corp. makes no warranties, representations or warranties regarding the suitability of its products for any specific purpose, and Tritech-MOS Technology Corp. does not assume any responsibility for application assistance or customer product design.
- Tritech-MOS Technology Corp. does not guarantee or assume any responsibility for the purchase or use of any unexpected or unauthorized products.
- Any intellectual property rights of Tritech-MOS Technology Corp. are not licensed through implicate or other means.
- Products of Tritech-MOS Technology Corp. are not included as critical components in life support equipment or systems without explicit written approval from Tritech-MOS Technology Corp.

Revision history:

Date	Rev	Description	Page
2023.07.12	23.07	Original	