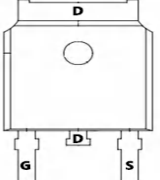
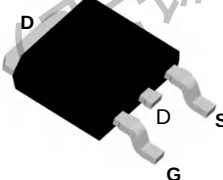
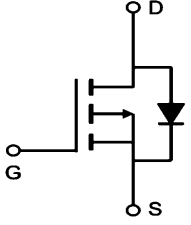


TM80P03D

P-Channel Enhancement Mosfet

General Description • Low $R_{DS(ON)}$ • RoHS and Halogen-Free Compliant Applications • Load switch • PWM	General Features $V_{DS} = -30V$ $I_D = -80A$ $R_{DS(ON)} = 6m\Omega$ (typ.) @ $V_{GS} = -10V$ 100% UIS Tested 100% R_g Tested 
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D:TO-252-3L

Marking: 80P03

Absolute Maximum Ratings (T _C = 25°C Unless Otherwise Noted)				
Symbol	Parameter	Rating	Units	
V _{DS}	Drain-Source Voltage	-30	V	
V _{GS}	Gate-Source Voltage	± 20	V	
I _D @T _C =25°C	Continuous Drain Current, V _{GS} @ - 10V ¹	-80	A	
I _D @T _C =100°C	Continuous Drain Current, V _{GS} @ - 10V ¹	-52	A	
I _{DM}	Pulsed Drain Current ²	-275	A	
EAS	Single Pulse Avalanche Energy ³	31	mJ	
I _{AS}	Avalanche Current	-25	A	
P _D @T _C =25°C	Total Power Dissipation ³	31.2	W	
T _{STG}	Storage Temperature Range	-55 to 175	°C	
T _J	Operating Junction Temperature Range	-55 to 175	°C	
Thermal Data				
Symbol	Parameter	Typ.	Max.	Unit
R _{θJA}	Thermal Resistance Junction-ambient ¹	---	62	°C/W
R _{θJC}	Thermal Resistance Junction-Case ¹	---	6.6	°C/W

TM80P03D
P-Channel Enhancement Mosfet
Electrical Characteristics $T_c = 25^\circ\text{C}$, unless otherwise noted

Parameter		Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics							
Drain-Source Breakdown Voltage		$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-30	-	-	V
Gate-body Leakage current		I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$	-	-	± 100	nA
Zero Gate Voltage Drain Current	$T_J=25^{\circ}C$	I_{DSS}	$V_{DS} = -24V, V_{GS} = 0V$	-	-	-1	μA
	$T_J=55^{\circ}C$			-	-	-5	
Gate-Threshold Voltage		$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1.0	-1.5	-2.0	V
Drain-Source On-Resistance ²		$R_{DS(on)}$	$V_{GS} = -10V, I_D = -12A$	-	6	7.7	mΩ
			$V_{GS} = -4.5V, I_D = -8A$	-	7.8	12	
Forward Transconductance		g_{fs}	$V_{DS} = -5V, I_D = -20A$	-	28	-	S
Dynamic Characteristics							
Input Capacitance		C_{iss}	$V_{DS} = -15V, V_{GS} = 0V, f = 1MHz$	-	4320	-	pF
Output Capacitance		C_{oss}		-	529	-	
Reverse Transfer Capacitance		C_{rss}		-	487	-	
Switching Characteristics							
Gate Resistance		R_g	$V_{DS} = 0V, V_{GS} = 0V, f = 1.0MHz$	-	4.0	-	Ω
Total Gate Charge		Q_g	$V_{GS} = -10V, V_{DS} = -15V, I_D = -15A$	-	45	-	nC
Gate-Source Charge		Q_{gs}		-	8.5	-	
Gate-Drain Charge		Q_{gd}		-	12.8	-	
Turn-On Delay Time		$t_{d(on)}$	$V_{GS} = -10V, V_{DD} = -15V, R_G = 2.5\Omega, I_D = -15A$	-	18.9	-	nS
Rise Time		t_r		-	15.7	-	
Turn-Off Delay Time		$t_{d(off)}$		-	64.8	-	
Fall Time		t_f		-	36.5	-	
Drain-Source Body Diode Characteristics							
Diode Forward Voltage ²		V_{SD}	$I_S = -1A, V_{GS} = 0V$	-	-	-1	V
Continuous Source Current ^{1,5}		I_S	$V_G = V_D = 0V$, Force Current	-	-	-80	A

Note :

1. The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
2. The data tested by pulsed, pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
3. The EAS data shows Max. rating. The test condition is $V_{DD} = -25V, V_{GS} = -10V, L = 0.1\text{mH}, I_{AS} = -25A$
4. The power dissipation is limited by 150°C junction temperature
5. The data is theoretically the same as I_D and I_{DM} , in real applications, should be limited by total power dissipation.



TM80P03D

P-Channel Enhancement Mosfet

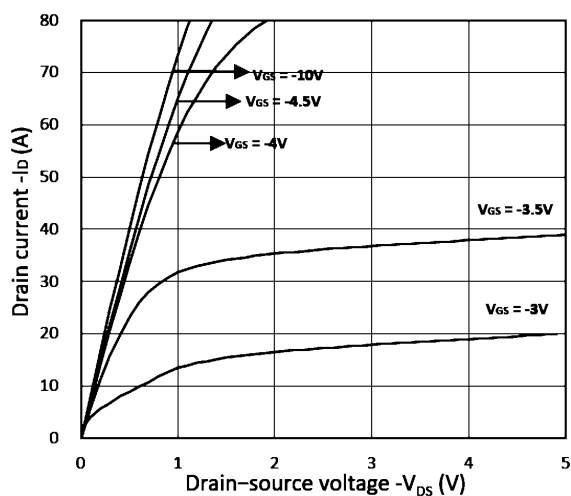


Figure 1. Output Characteristics

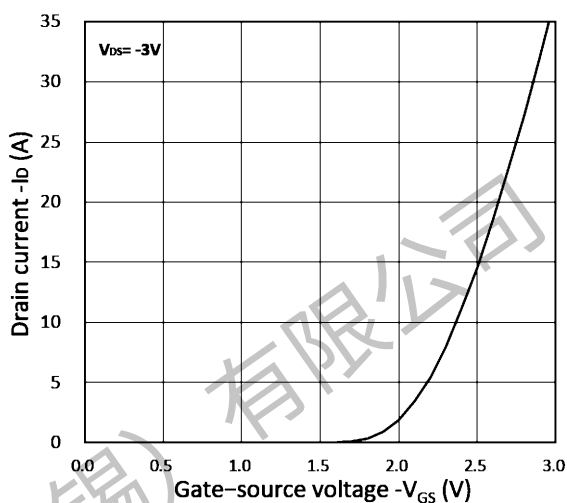


Figure 2. Transfer Characteristics

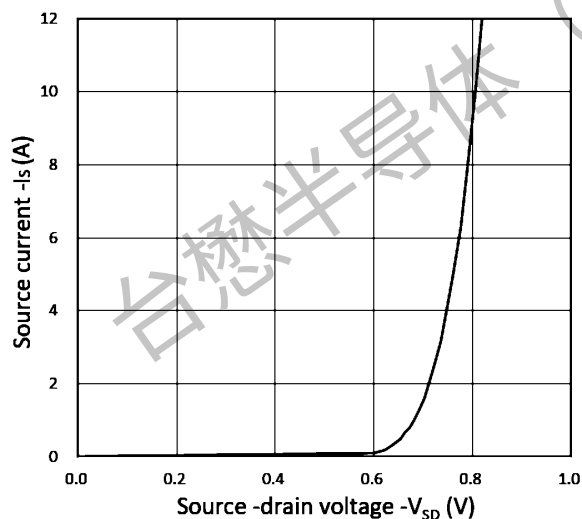


Figure 3. Forward Characteristics of Reverse

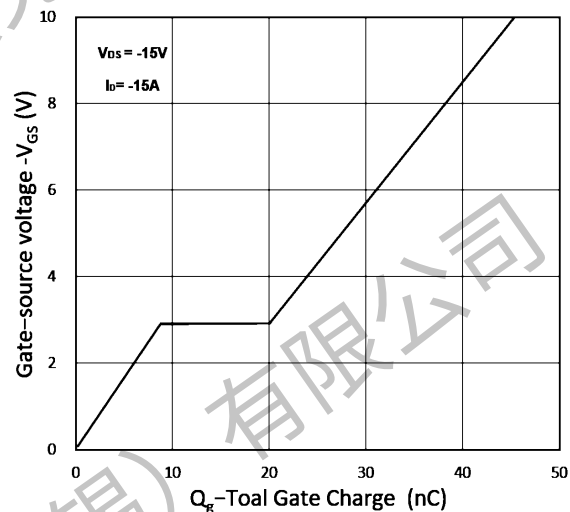


Figure 4. Gate Charge Characteristics

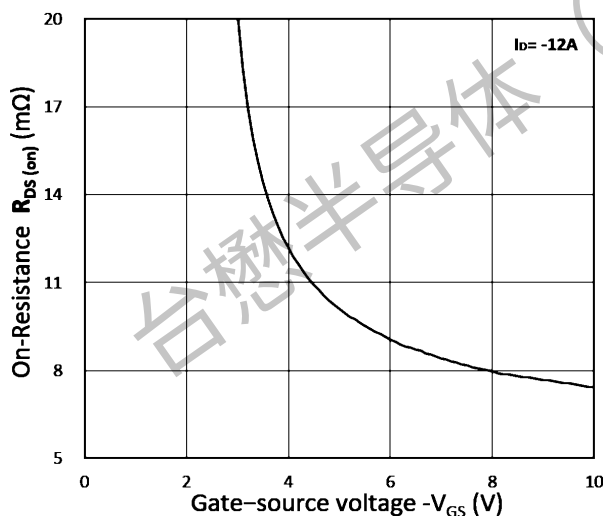


Figure 5. $R_{DS(on)}$ vs. V_{GS}

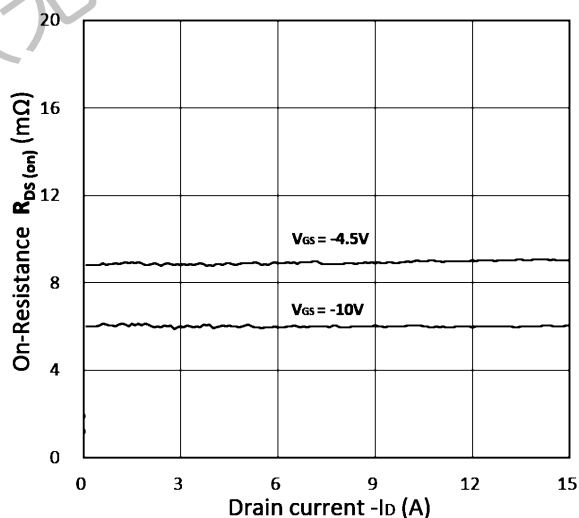


Figure 6. $R_{DS(on)}$ vs. I_D

TM80P03D

P-Channel Enhancement Mosfet

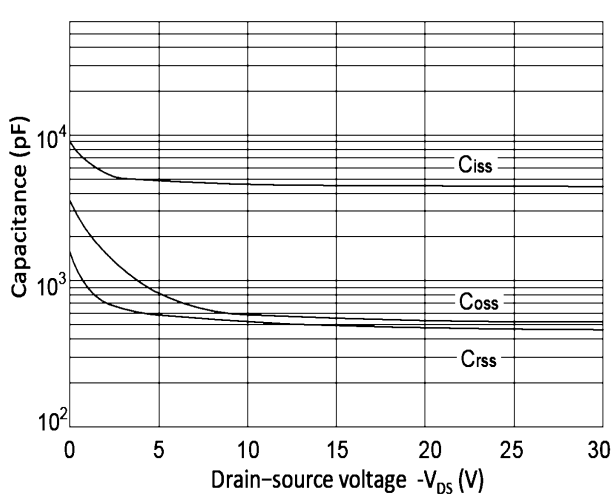


Figure 7. Capacitance Characteristics

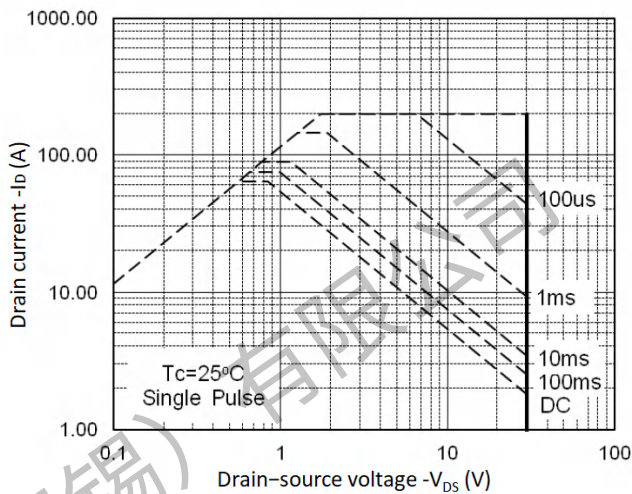


Figure 8. Safe Operating Area

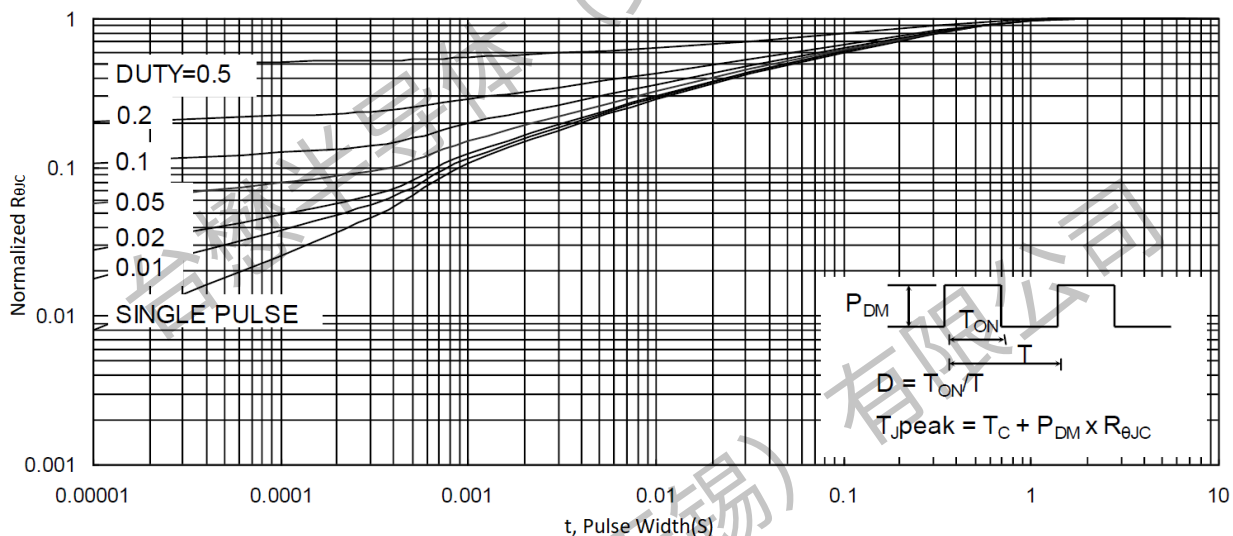


Figure 9. Normalized Maximum Transient Thermal Impedance

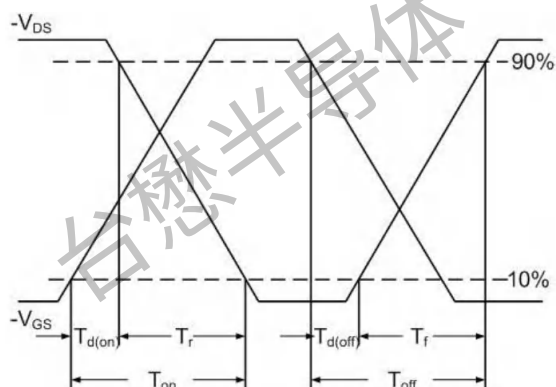


Figure 10. Switching Time Waveform

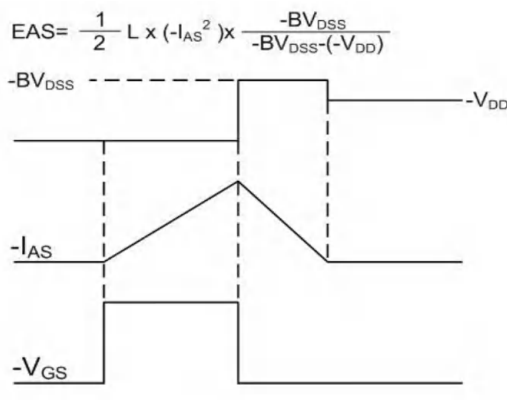


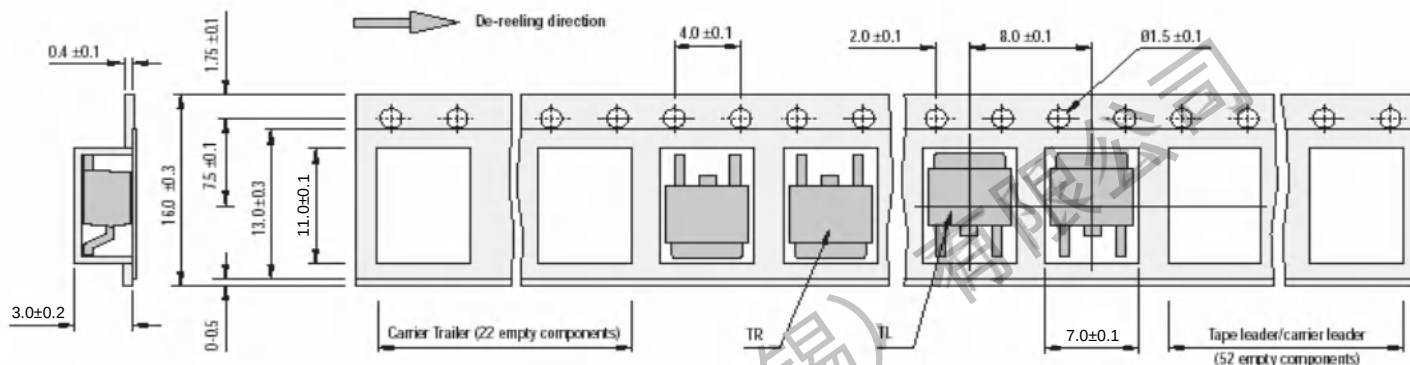
Figure 11. Unclamped Inductive Switching
Waveform



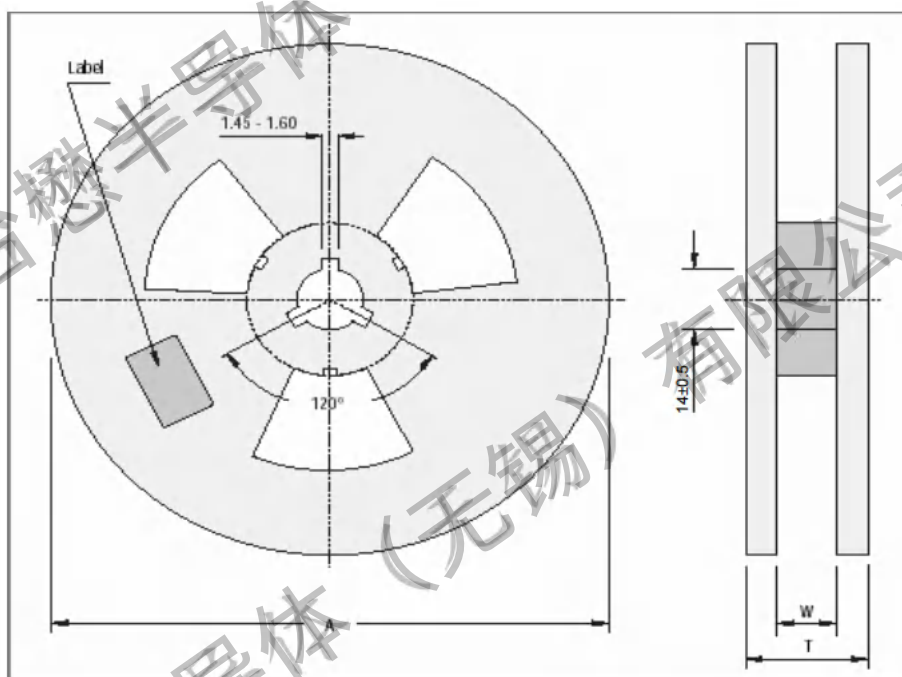
TM80P03D

P-Channel Enhancement Mosfet

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
2023.06.28	23.06	Original	