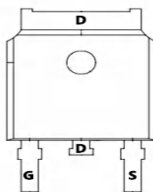
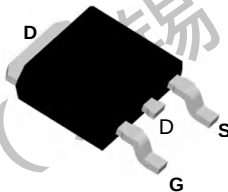
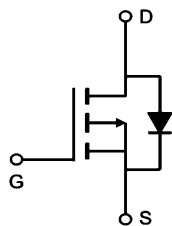


TM15P15D

P-Channel Enhancement Mosfet

General Description • Low R_{DS(ON)} • RoHS and Halogen-Free Compliant Applications • Load switch • PWM	General Features V_{DS} =-150V I_D=-15A R_{DS(ON)} = 270mΩ(typ.) @ V_{GS} =-10V 100% UIS Tested 100% R_g Tested 																																								
D:TO-252-3L  Marking:15P15  																																									
Absolute Maximum Ratings (T_C = 25°C Unless Otherwise Noted) <table><tr><th>Symbol</th><th>Parameter</th><th>Rating</th><th>Units</th></tr><tr><td>V_{DS}</td><td>Drain-Source Voltage</td><td>-150</td><td>V</td></tr><tr><td>V_{GS}</td><td>Gate-Source Voltage</td><td>±20</td><td>V</td></tr><tr><td>I_D@T_C=25°C</td><td>Continuous Drain Current, V_{GS} @ - 10V</td><td>-15</td><td>A</td></tr><tr><td>I_D@T_C=100°C</td><td>Continuous Drain Current, V_{GS} @ - 10V</td><td>-7.5</td><td>A</td></tr><tr><td>I_{DM}</td><td>Pulsed Drain Current</td><td>-60</td><td>A</td></tr><tr><td>EAS</td><td>Single Pulse Avalanche Energy</td><td>72.3</td><td>mJ</td></tr><tr><td>P_D@T_C=25°C</td><td>Total Power Dissipation</td><td>50</td><td>W</td></tr><tr><td>T_{STG}</td><td>Storage Temperature Range</td><td>-55 to 175</td><td>°C</td></tr><tr><td>T_J</td><td>Operating Junction Temperature Range</td><td>-55 to 175</td><td>°C</td></tr></table>		Symbol	Parameter	Rating	Units	V _{DS}	Drain-Source Voltage	-150	V	V _{GS}	Gate-Source Voltage	±20	V	I _D @T _C =25°C	Continuous Drain Current, V _{GS} @ - 10V	-15	A	I _D @T _C =100°C	Continuous Drain Current, V _{GS} @ - 10V	-7.5	A	I _{DM}	Pulsed Drain Current	-60	A	EAS	Single Pulse Avalanche Energy	72.3	mJ	P _D @T _C =25°C	Total Power Dissipation	50	W	T _{STG}	Storage Temperature Range	-55 to 175	°C	T _J	Operating Junction Temperature Range	-55 to 175	°C
Symbol	Parameter	Rating	Units																																						
V _{DS}	Drain-Source Voltage	-150	V																																						
V _{GS}	Gate-Source Voltage	±20	V																																						
I _D @T _C =25°C	Continuous Drain Current, V _{GS} @ - 10V	-15	A																																						
I _D @T _C =100°C	Continuous Drain Current, V _{GS} @ - 10V	-7.5	A																																						
I _{DM}	Pulsed Drain Current	-60	A																																						
EAS	Single Pulse Avalanche Energy	72.3	mJ																																						
P _D @T _C =25°C	Total Power Dissipation	50	W																																						
T _{STG}	Storage Temperature Range	-55 to 175	°C																																						
T _J	Operating Junction Temperature Range	-55 to 175	°C																																						
Thermal Data <table><tr><th>Symbol</th><th>Parameter</th><th>Typ.</th><th>Max.</th><th>Unit</th></tr><tr><td>R_{θJA}</td><td>Thermal Resistance Junction-ambient</td><td>---</td><td>---</td><td>°C/W</td></tr><tr><td>R_{θJC}</td><td>Thermal Resistance Junction-Case</td><td>---</td><td>3</td><td>°C/W</td></tr></table>		Symbol	Parameter	Typ.	Max.	Unit	R _{θJA}	Thermal Resistance Junction-ambient	---	---	°C/W	R _{θJC}	Thermal Resistance Junction-Case	---	3	°C/W																									
Symbol	Parameter	Typ.	Max.	Unit																																					
R _{θJA}	Thermal Resistance Junction-ambient	---	---	°C/W																																					
R _{θJC}	Thermal Resistance Junction-Case	---	3	°C/W																																					

TM15P15D
P-Channel Enhancement Mosfet
Electrical Characteristics ($T_J=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	-150	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=-10V, I_D=-2A$	---	270	340	$m\Omega$
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=-250\mu A$	-2.0	-3.0	-4.0	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=-150V, V_{GS}=0V, T_J=25^{\circ}\text{C}$	---	---	-1	μA
		$V_{DS}=-150V, V_{GS}=0V, T_J=85^{\circ}\text{C}$	---	---	-100	
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	± 100	nA
R_g	Gate Resistance	$V_{DS}=0V, V_{GS}=0V, f=1\text{MHz}$	---	5.2	---	Ω
Q_g	Total Gate Charge	$V_{DS}=-50V, V_{GS}=-10V, I_D=-2A$	---	38.6	---	nC
Q_{gs}	Gate-Source Charge		---	8.1	---	
Q_{gd}	Gate-Drain Charge		---	9.4	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=-50V, V_{GS}=-10V, R_G=3\Omega, I_D=-2A$	---	30	---	ns
T_r	Rise Time		---	34	---	
$T_{d(off)}$	Turn-Off Delay Time		---	241	---	
T_f	Fall Time		---	131	---	
C_{iss}	Input Capacitance	$V_{DS}=-50V, V_{GS}=0V, f=1\text{MHz}$	---	2069	---	pF
C_{oss}	Output Capacitance		---	44.3	---	
C_{rss}	Reverse Transfer Capacitance		---	37.1	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	-15	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V, I_S=-1A, T_J=25^{\circ}\text{C}$	---	---	-1.2	V
t_{rr}	Reverse Recovery Time	$I_F=-2A, di/dt=-100A/\mu s, T_J=25^{\circ}\text{C}$	---	34	---	nS
Q_{rr}	Reverse Recovery Charge		---	32.3	---	nC

Typical Electrical And Thermal Characteristics (Curves)

Figure 1. Output Characteristics

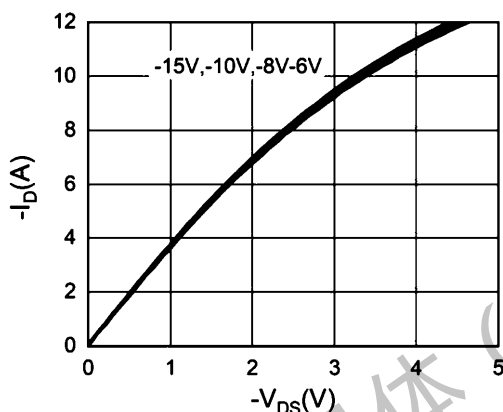


Figure 2. Transfer Characteristics

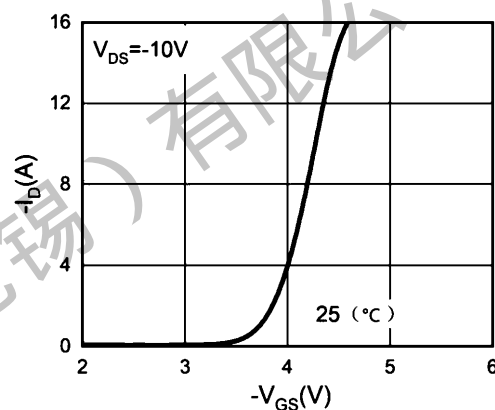


Figure 3. Power Dissipation

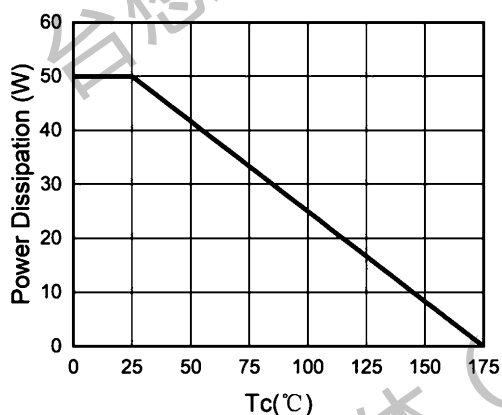


Figure 4. Drain Current

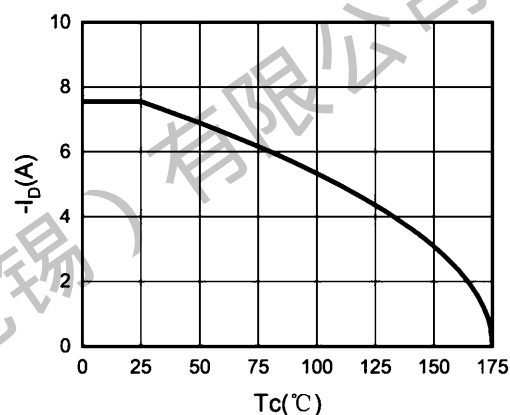


Figure 5. BV_{DSS} vs Junction Temperature

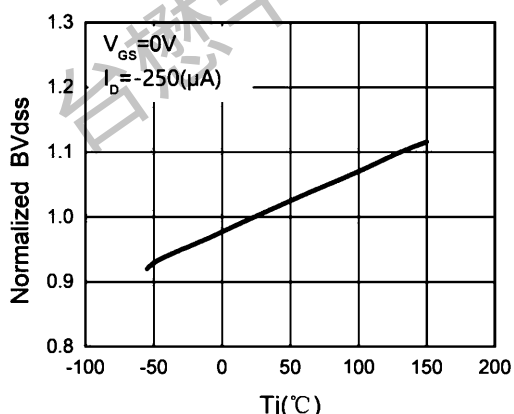
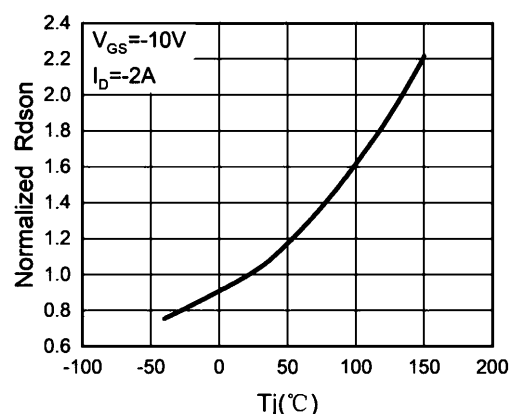


Figure 6. $R_{DS(ON)}$ vs Junction Temperature



TM15P15D

P-Channel Enhancement Mosfet

Figure 7. Gate Charge Waveforms

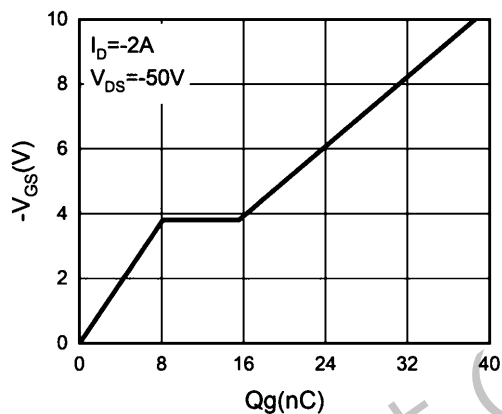


Figure 8. Capacitance

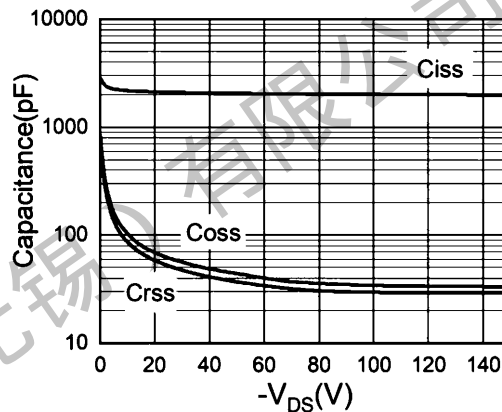


Figure 9. Body-Diode Characteristics

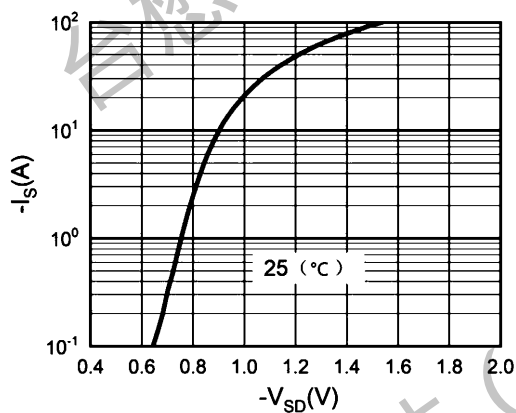
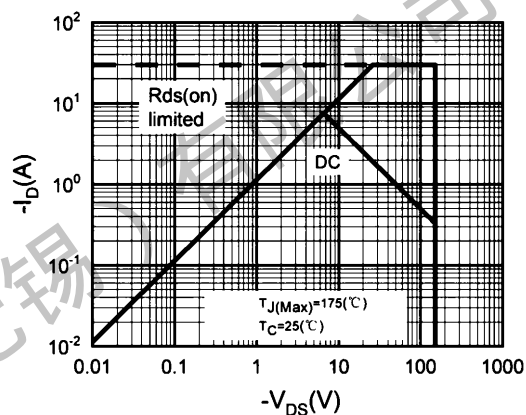


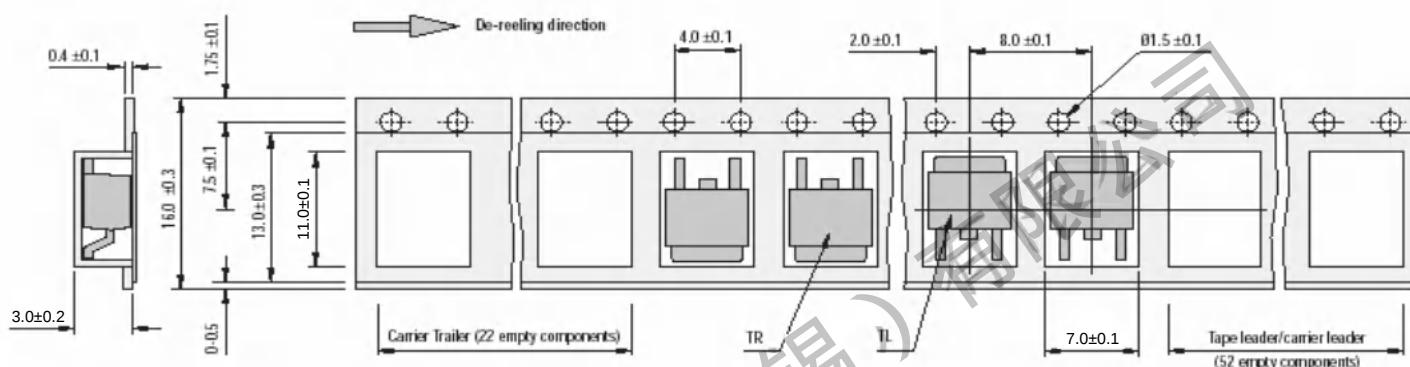
Figure 10. Maximum Safe Operating Area



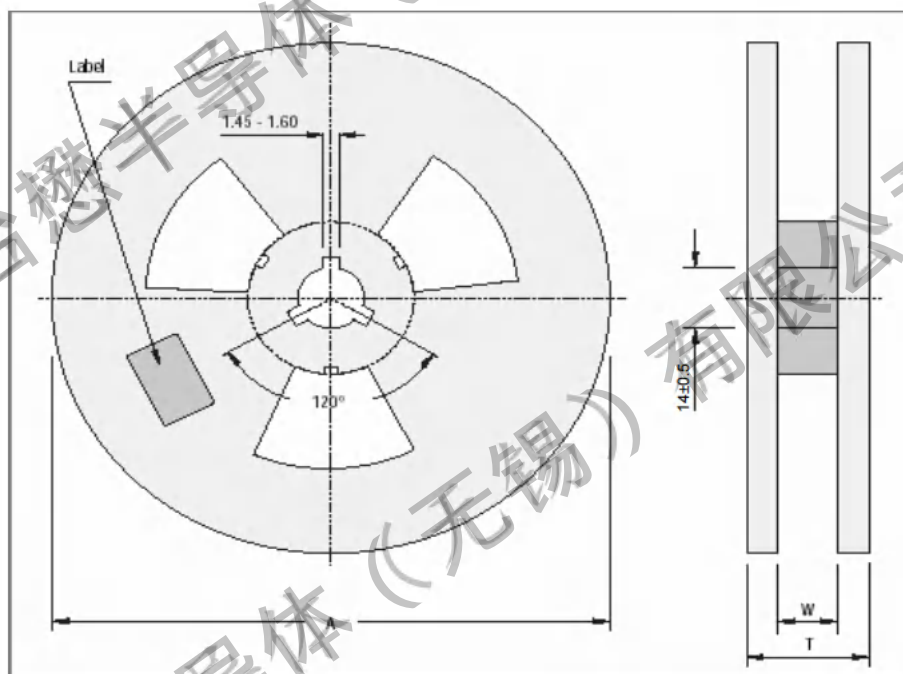
TM15P15D

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	

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
2023.05.12	23.05	Original	