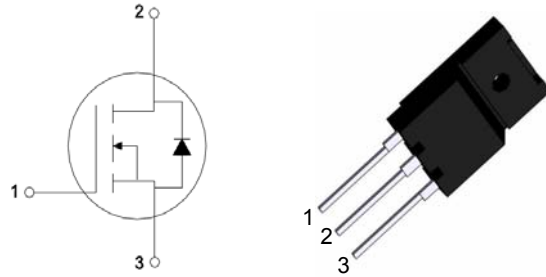


## PRODUCT FEATURES

- High speed switching
- $R_{DS(ON),typ}=6\Omega@V_{GS}=10V$
- Fully isolated TO-3PF plastic package

## APPLICATIONS

- Switching applications



1.GATE  
2.DRAIN  
3.SOURCE

Type	$V_{DS}$	$I_D$	$R_{DS(ON),max}$ $T_J=25^\circ C$	$T_{Jmax}$	Marking	Package
MM3N150PF	1500V	2.5A	9 $\Omega$	150 $^\circ C$	MM3N150PF	TO-3PF

## ABSOLUTE MAXIMUM RATINGS ( $T_C=25^\circ C$ unless otherwise specified)

Symbol	Parameter/Test Conditions	Values	Unit
$V_{DSS}$	Drain Source Voltage	$T_J=25^\circ C$	1500
$V_{GSS}$	Gate Source Voltage		$\pm 30$
$I_D$	Continuous Drain Current	$T_C=25^\circ C$	2.5
		$T_C=100^\circ C$	1.6
$I_{DM}$	Pulsed Drain Current at $V_{GS}=10V$	Limited by $T_{Jmax}$	10
$P_D$	Maximum Power Dissipation		63
$E_{AS}$	Single Pulse Avalanche Energy ( $V_{DD}=50V$ )		450
$T_{Jmax}$	Max. Junction Temperature		150
$T_{STG}$	Storage Temperature Range		-55~150

## THERMAL CHARACTERISTICS ( $T_C=25^\circ C$ unless otherwise specified)

Symbol	Parameter/Test Conditions	Values	Unit
$R_{thJC}$	Thermal resistance, junction to case	2	$^\circ C/W$
$R_{thJA}$	Thermal resistance, junction to ambient	50	

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# MM3N150PF

## MOSFET

### ELECTRICAL CHARACTERISTICS ( $T_C=25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter/Test Conditions		Min.	Typ.	Max.	Unit	
$V_{(BR)DSS}$	Drain Source Breakdown Voltage	$V_{GS}=0V, I_D=1mA$	1500			V	
$R_{DS(ON)}$	Drain Source ON Resistance	$V_{GS}=10V, I_D=1.3A$		6	9	$\Omega$	
$I_{DSS}$	Drain Source Leakage Current	$V_{DS}=1500V, V_{GS}=0V$			10	$\mu A$	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\mu A$	3	4	5	V	
$I_{GSS}$	Gate Leakage Current	$V_{DS}=0V, V_{GS}=\pm 20V$	-100		100	nA	
$R_{gint}$	Integrated Gate Resistor			2		$\Omega$	
$Q_g$	Total Gate Charge	$V_{DD}=1200V, I_D=2.5A, V_{GS}=10V$		34		nC	
$Q_{GS}$	Gate Source Charge			7		nC	
$Q_{GD}$	Gate Drain Charge			19		nC	
$C_{iss}$	Input Capacitance			1450		pF	
$C_{oss}$	Output Capacitance	$V_{DS}=25V, V_{GS}=0V, f=1MHz$		90		pF	
$C_{rss}$	Reverse Transfer Capacitance			10		pF	
$t_{d(on)}$	Turn on Delay Time	$V_{DD}=750V, I_D=1.25A,$ $R_G=4.7\Omega,$ $V_{GS}=10V,$ (Resistive Load)		$T_J=25^\circ\text{C}$		32	ns
$t_r$	Rise Time					67	ns
$t_{d(off)}$	Turn off Delay Time					45	ns
$t_f$	Fall Time					61	ns

### Source-Drain BODY-DIODE CHARACTERISTICS ( $T_C=25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter/Test Conditions		Min.	Typ.	Max.	Unit
$I_{SD}$	Continuous Source Drain Current				2.5	A
$V_{SD}$	Forward Voltage	$I_S=2.5A, V_{GS}=0V$			1.6	V
$t_{rr}$	Reverse Recovery time	$I_F=2.5A, V_{GS}=0V$		415		ns
$Q_{RR}$	Reverse Recovery Charge	$dI_F/dt=-100A/\mu s$		2300		nC

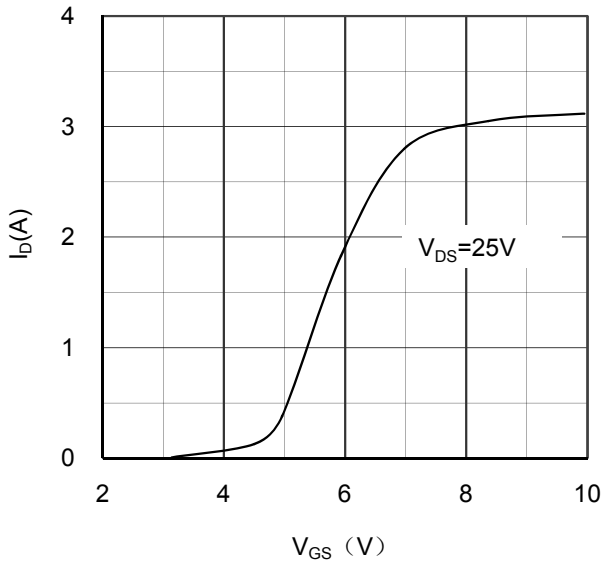


Figure 1. Transfer characteristics

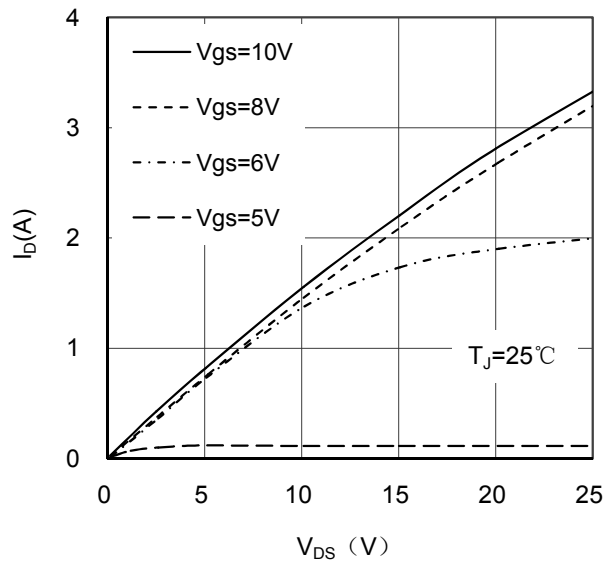


Figure 2. Typical Output Characteristics

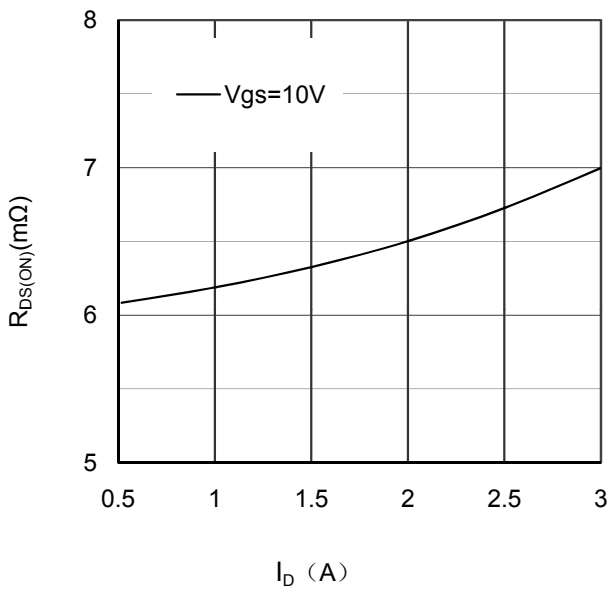


Figure 3. Drain-Source ON Resistance vs  $I_D$

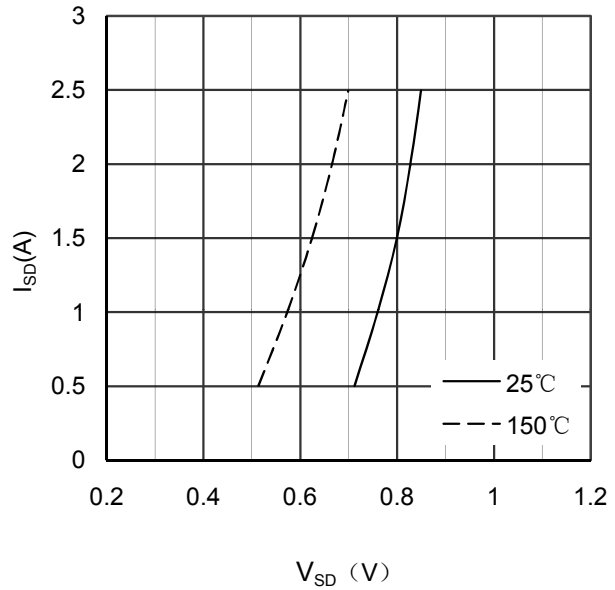


Figure 4. Source-Drain Voltage

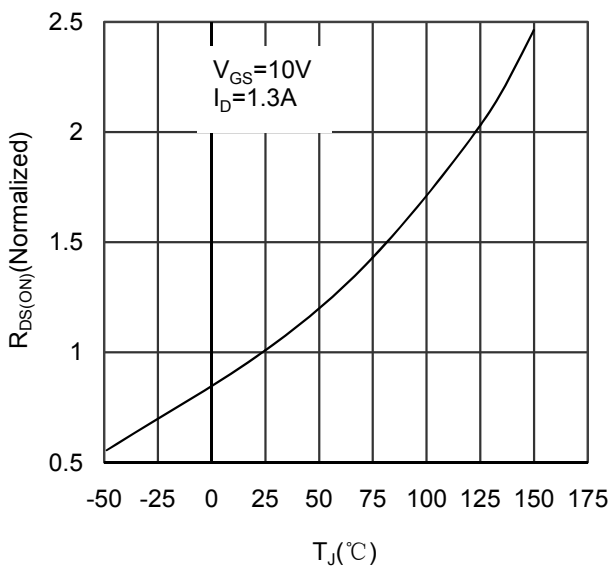


Figure 5. Drain-Source ON Resistance vs Junction Temperature

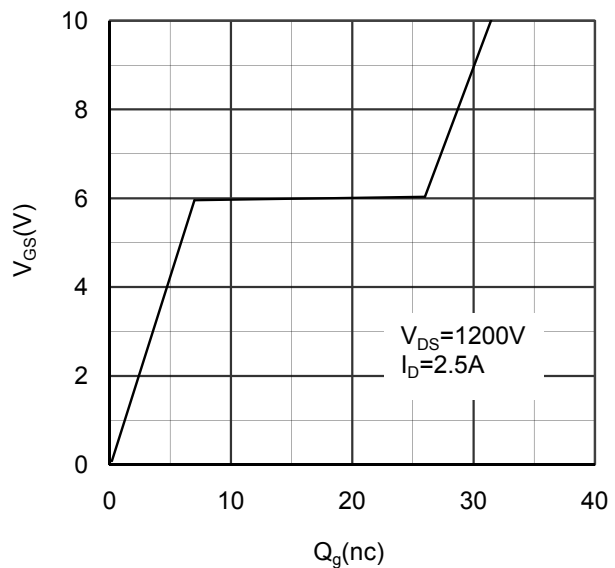


Figure 6. Gate Charge characteristics

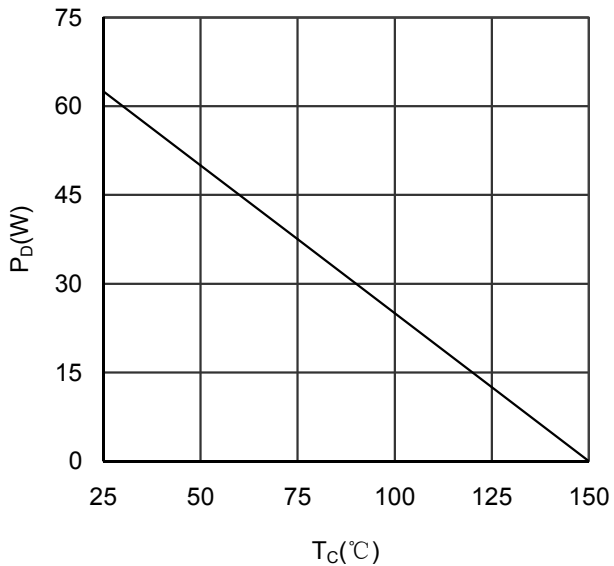


Figure 7. Maximum Power Dissipation vs Case Temperature

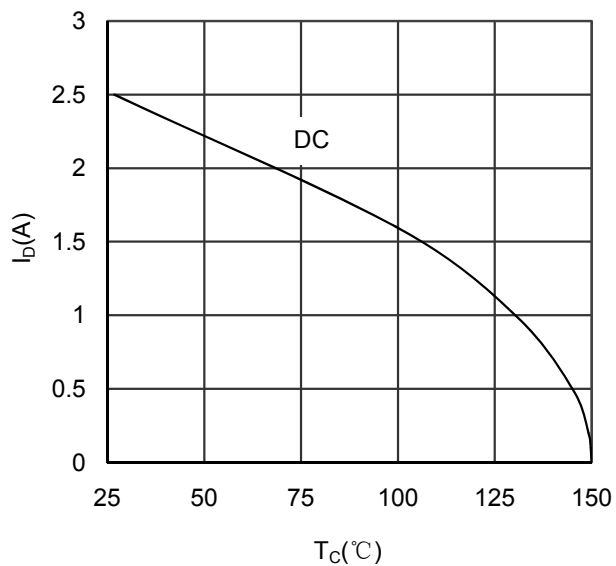


Figure 8. Maximum Continuous Drain Current vs Case Temperature

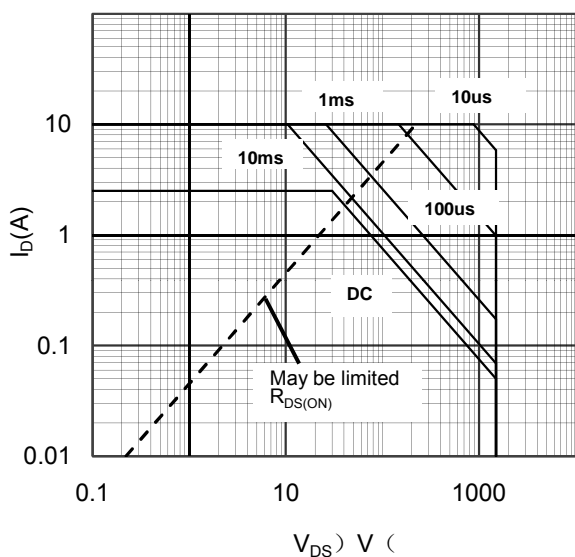


Figure 9. Maximum Forward Safe Operation Area

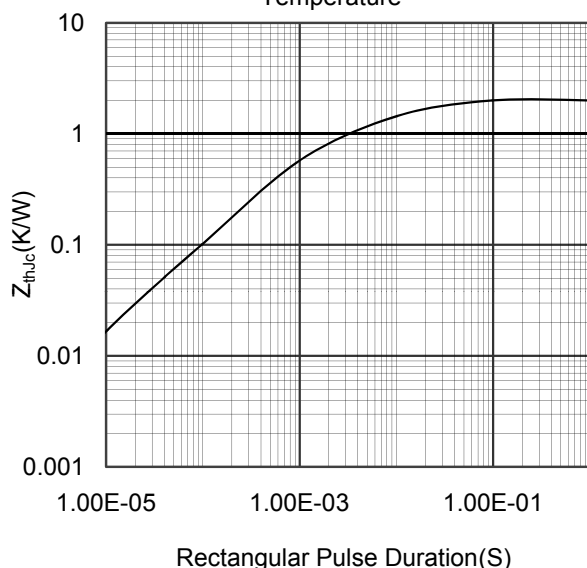
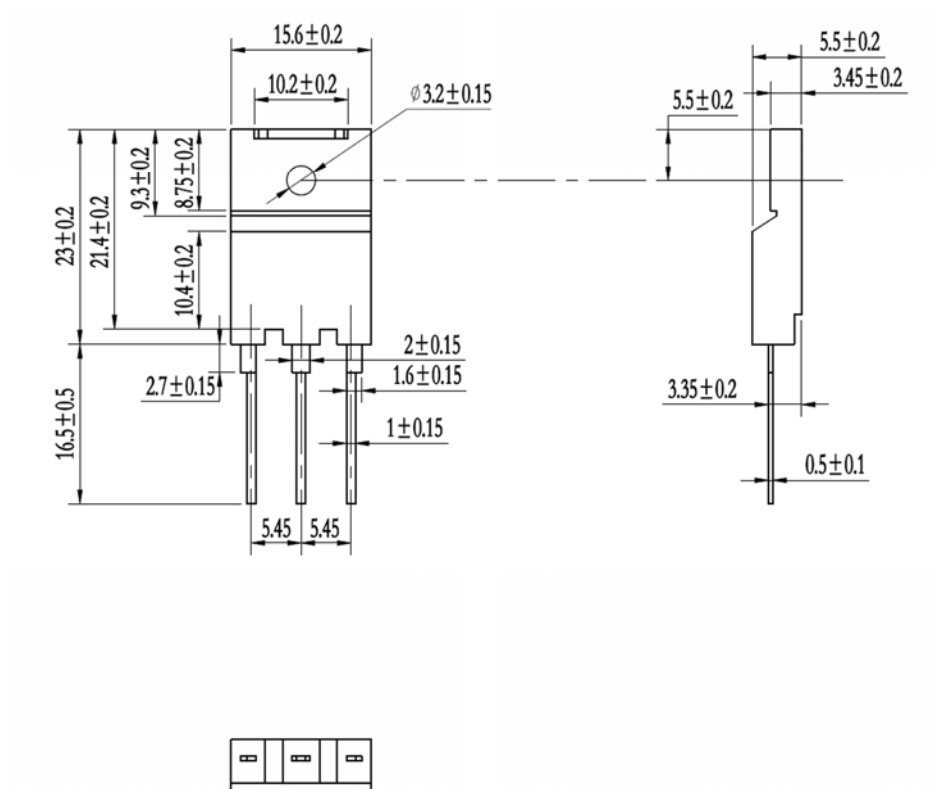


Figure 10. Transient Thermal Impedance



Dimensions in (mm)  
Figure 11. Package Outline