



MM700HF10T2NH

MOSFET Module

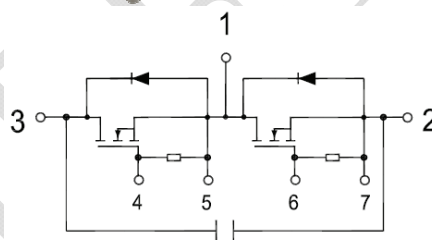
Features:

- Improved Gate, Avalanche and Dynamic dv/dt Ruggedness
- Fully Characterized Capacitance and Avalanche SOA
- Enhanced Body Diode dV/dt and dI/dt Capability
- Lead-Free Halogen-Free



Applications:

- UPS/SMPS
- Hard Switched and High Frequency Circuits



Absolute Maximum Ratings($T_C=25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Description		Value	Units
V _{DSS}	Drain-Source Blocking Voltage		100	V
V _{GSS}	Gate-Source Voltage		±20	V
I _D	Continuous Drain Current, V _{GS} =10V	T _C = 100°C	700	A
		T _C = 25°C	1080	A
I _{DM}	Pulsed Drain Current		4020	A
I _S	Continuous Source Current (Body Diode)		700	A
I _{SM}	Pulsed Source Current (Body Diode)		4020	A
P _D	Maximum Power Dissipation	T _C = 25°C T _{Jmax} =175°C	1560	W



Electrical Characteristics of MOSFET ($T_C=25^{\circ}\text{C}$ unless otherwise specified)

Static Characteristics

Symbol	Description	Conditions	Min	Typ	Max	Unit
$V_{GS(th)}$	Gate Threshold Voltage	$I_D = 1.5\text{mA}$, $V_{DS} = V_{GS}$	2.0	2.8	3.5	V
$R_{DS(on)}$	Static Drain-Source On-Resistance	$I_D = 700\text{A}$, $V_{GS} = 10\text{V}$		0.60		m Ω
I_{DSS}	Drain-Source Leakage Current	$V_{DS} = V_{DSS}$, $V_{GS} = 0\text{V}$ $T_J = 25^{\circ}\text{C}$			1	mA
I_{GSS}	Gate- Source Leakage Current	$V_{GS} = V_{GSS}$, $V_{DS} = 0\text{V}$ $T_J = 25^{\circ}\text{C}$			200	nA
C_{iss}	Input Capacitance	$V_{DS} = 50\text{V}$, $V_{GS} = 0\text{V}$, $f = 1\text{MHz}$		57.6		nF
C_{oss}	Output Capacitance			4.0		nF
C_{rss}	Reverse Transfer Capacitance			1.5		nF

Switching Characteristics

Symbol	Description	Conditions	Min	Typ	Max	Unit
Q_g	Total Gate Charge	$I_D = 450\text{A}$, $V_{DS} = 50\text{V}$, $V_{GS} = 10\text{V}$		900	1260	nC
Q_{gs}	Gate-Source Charge			210		nC
Q_{gd}	Gate-Drain (Miller) Charge			258		nC
$t_{d(on)}$	Turn-on Delay Time	$V_{DS} = 65\text{V}$, $I_D = 450\text{A}$; $R_G = 0.43\Omega$, $V_{GS} = 10\text{V}$		150		ns
t_r	Rise Time			400		ns
$t_{d(off)}$	Turn-off Delay Time			468		ns
t_f	Fall Time			528		ns
R_g	Internal Gate Resistor			2.50		Ω
$R_{\theta JC}$	MOSFET Thermal Resistance: Junction-to-Case				0.096	$^{\circ}\text{C/W}$

Diode Characteristics

Symbol	Description	Conditions	Min	Typ	Max	Unit		
V _{SD}	Source-Drain Voltage	I _S =450A, V _{GS} = 0V		1.00	1.30	V		
trr	Reverse Recovery Time	V _R = 85V, I _F = 450A, di/dt=100A/us	T _J = 25℃		300	450	ns	
			T _J = 125℃		360	540	ns	
Q _{rr}	Reverse Recovery Charge		T _J = 25℃		564	840	nC	
			T _J = 125℃		840	1260	nC	
I _{RRM}	Reverse Recovery Current		T _J = 25℃		21		A	



Module Internal Resistance Characteristics

Symbol	Description	Conditions	Min	Typ	Max	Unit
R	R Value			1		MΩ
t _c	Temperature Coefficient	20°C~60°C	-100		+100	ppm/°C

Module Internal Capacitor Characteristics

Symbol	Description	Conditions	Min	Typ	Max	Unit
C	Capacitor			10		nF
	Tolerance		-10		+10	%

Module

Symbol	Description	Min	Typ	Max	Unit
V _{iso}	Isolation Voltage (All Terminals Shorted) f = 50Hz, 1minute	2500			V
L _{sCE}	Stray Inductance Module		14		nH
T _J	Maximum Junction Temperature			175	°C
T _{JOP}	Maximum Operating Junction Temperature Range	-40		+150	°C
T _{stg}	Storage Temperature	-40		+125	°C
CTI	Comparative Tracking Index	200			
R _{θCS}	Case-To-Sink Thermally (Conductive Grease Applied)		0.03		°C/W
T	Power Terminals Screw:M6	3.0		5.0	N·m
T	Mounting Screw:M6	4.0		6.0	N·m
G	Weight		300		g

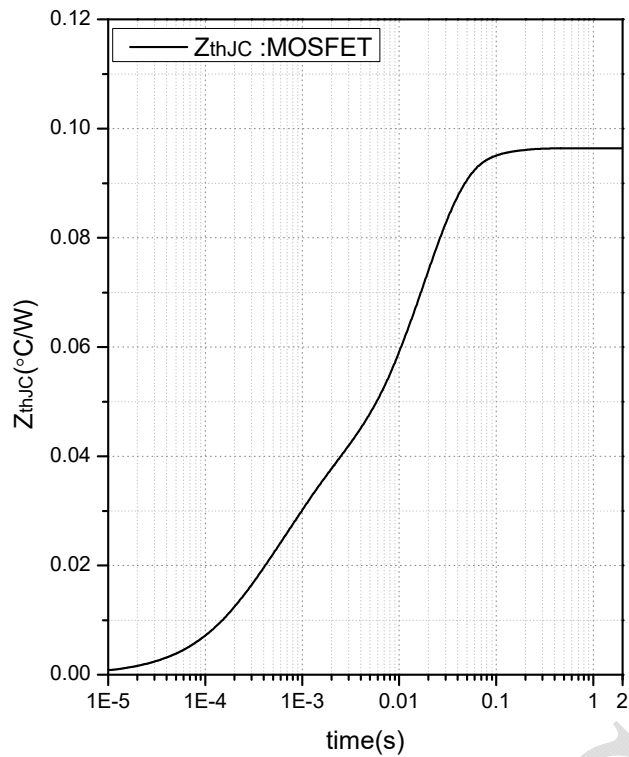
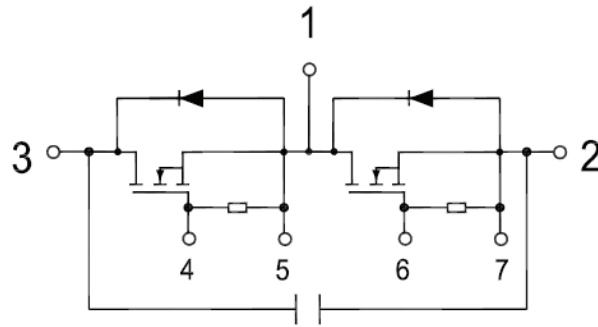


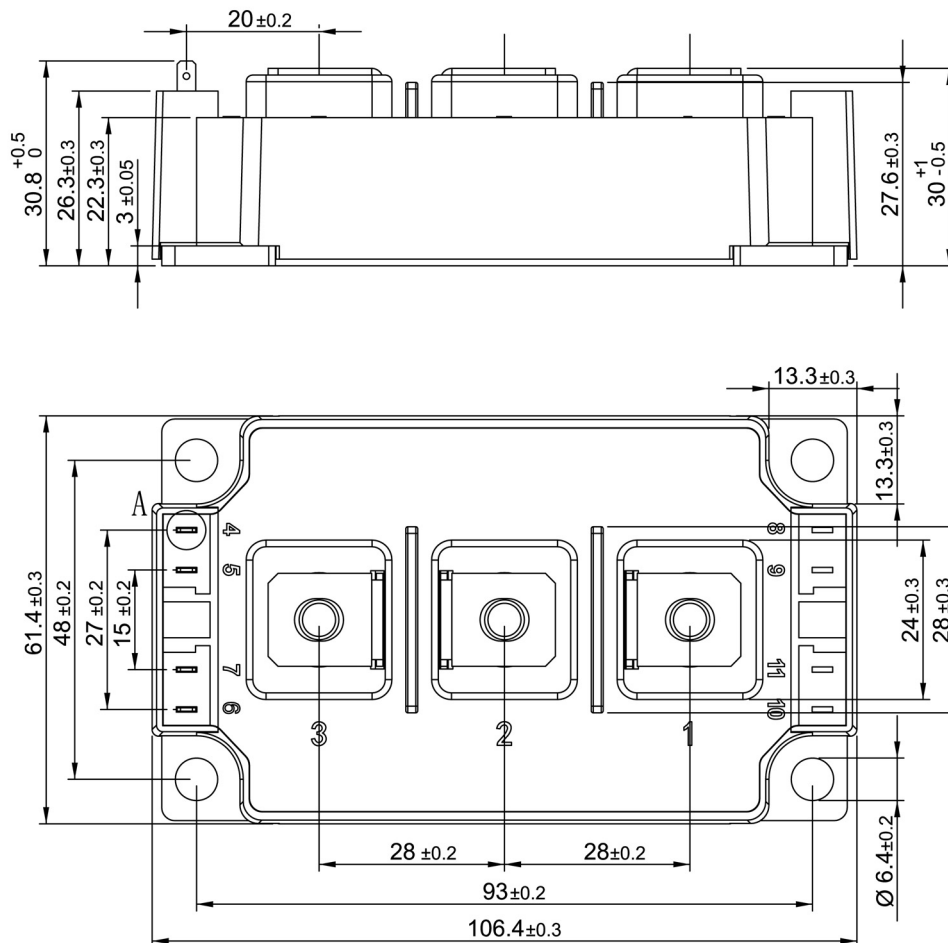
Fig.1 Transient Thermal Impedance (MOSFET)



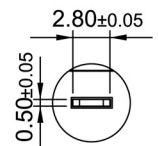
Internal Circuit



Package Outline (Unit: mm):



View A
scale 3:1





Date	Revision	Notes
04/11/2014	01	Initial Release
01/05/2021	02	Update Outline

Announcement

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