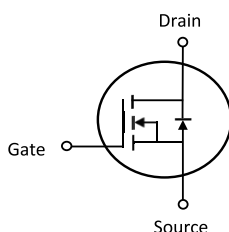


RoHS
Compliant



Device Schematic



Applications

- High Efficiency Switch Mode Power Supplies
- Electronic Lamp Ballasts Based on Half Bridge
- LED Power Supplies

Features

- $R_{DS(ON)} = 1.2\Omega$ @ $V_{GS} = 10V$
- Ultra Low Gate Charge
- Low Reverse Transfer Capacitance
- Fast Switching Capability
- Avalanche Energy Tested
- Improved dv/dt Capability, High Ruggedness

Maximum Ratings @TA = +25°C

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	650	V
Gate-Source Voltage	V_{GS}	± 30	
Avalanche Current (Note 2.)	I_{AR}	7	A
Continuous Drain Current	I_D	7	
Pulsed Drain Current (Note 2.)	I_{DM}	29.6	
Single Pulsed Avalanche Energy (Note 3.)	E_{AS}	530	mJ
Repetitive Avalanche Energy (Note 2.)	E_{AR}	14.2	
Peak Diode Recovery dv/dt (Note 4.)	dv/dt	4.5	V/ns
Power Dissipation	P_D	48	W
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	

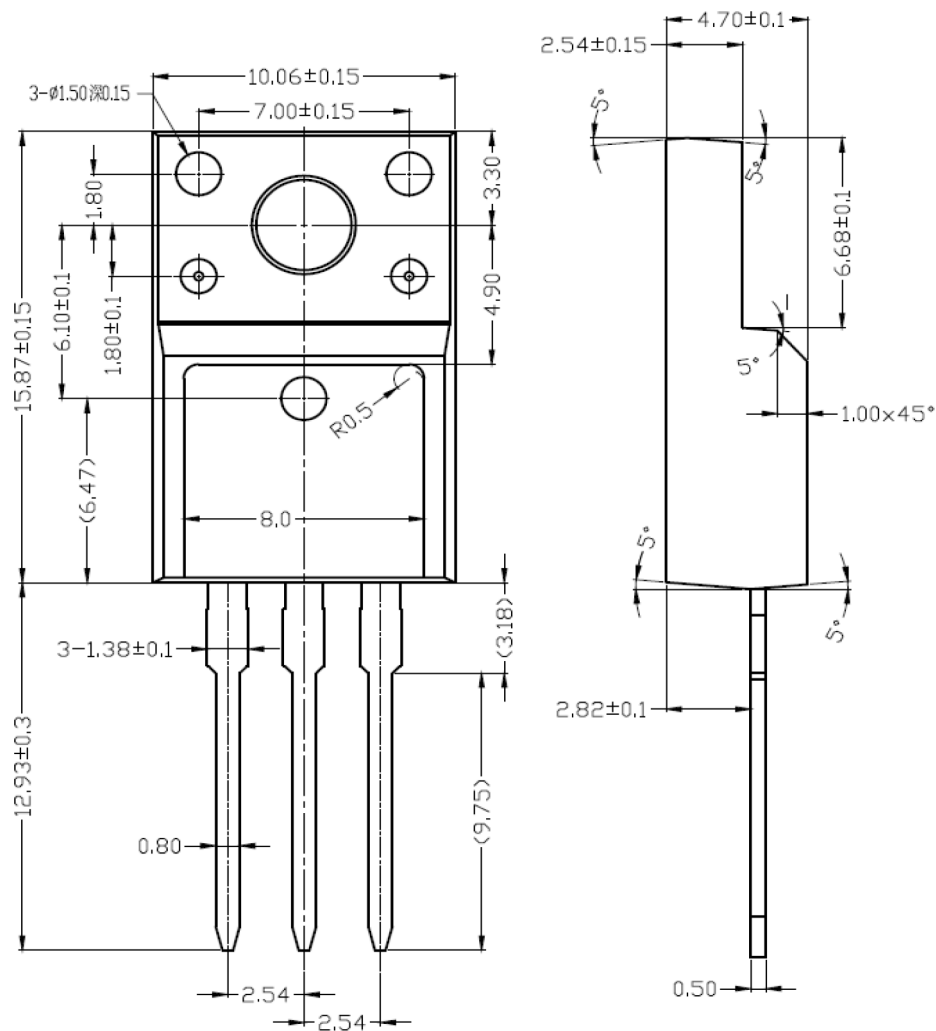
Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged.
2. Absolute maximum ratings are stress ratings only and functional device operation is not implied.
3. $L = 19.5mH$, $I_{AS} = 4A$, $V_{DD} = 50V$, $R_G = 25\Omega$, Starting $T_J = 25^\circ C$
4. $I_{SD} \leq 7A$, $di/dt \leq 200A/\mu s$, $V_{DD} \leq BV_{DSS}$, Starting $T_J = 25^\circ C$

Electrical Characteristics @TA = +25°C

Parameter	Test Conditions	Symbol	Min.	Typ.	Max.	Unit
OFF Characteristics						
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	V_{DSS}	650	--	--	V
Forward Gate-Source Leakage Current	$V_{DS}=0V, V_{GS}=30V$	I_{GSS}	--		100	nA
Reverse Gate-Source Leakage Current	$V_{DS}=0V, V_{GS}=-30V$		--		-100	
Drain-Source Leakage Current	$V_{DS}=650V, V_{GS}=0V$	I_{DSS}	--		1	μA
Breakdown Voltage Temperature Coefficient	$I_D=250\mu A$, Referenced to 25 μ	$\Delta BV_{DSS}/\Delta T_J$	--	0.67	--	
ON Characteristics						
Gate-Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	$V_{th(GS)}$	2	--	4	V
Static Drain-Source On-State Resistance	$V_{GS}=10V, I_D=3.5A$	$R_{DS(ON)}$	--	0.94	1.2	Ω
Dynamic Characteristics						
Input Capacitance	$V_{DS}=25V, V_{GS}=0V, F=1MHz$	C_{ISS}	-	--	1400	pF
Output Capacitance		C_{OSS}	-	--	018	
Reverse Transfer Capacitance		C_{RSS}	-	16	21	
Switching Characteristics						
Turn-On Delay Time	$V_{DD}=325V, V_{GS}=7.4A, R_G=25\Omega, (Note\ 1,2)$	$t_{D(ON)}$	-	--	70	ns
Turn-On Rise Time		t_R			170	
Turn-Off Delay Time		$t_{D(OFF)}$			140	
Turn-Off Fall Time		t_F			130	
Switching Characteristics						
Total Gate Charge	$V_{DS}=520V, I_D=7A, V_{GS}=10V (Note\ 1,2)$	Q_G	--	29	38	nC
Gate-Source Charge		Q_{GS}		7	--	
Gate-Drain Charge		Q_{GD}		14.5	--	
Drain-Source Diode Characteristics And Maximum Ratings						
Drain-Source Diode Forward Volta	$I_S=7A, V_{GS}=0V$	V_{SD}	-	--	1.4	V
Maximum Continuous Drain-Source Diode Forward Current		I_S		--	7	A
Maximum Pulsed Drain-Source Diode Forward Current		I_{SM}		--	29.6	
Reverse Recovery Time	$V_{GS}=0V, I_S=7A, dI_F/dt=-100A/\mu s (Note\ 1)$	t_{RR}		320	--	ns
Reverse Recovery Charge		Q_{RR}		2.4	--	μC
Notes:1. Pulse Test:Pulse Width $\leq 300us$,Duty Cycle $\leq 2\%$. 2. Essentially independent of operating temperature						

Dimensions : Millimetres

Outline Dimensions



Part Number Table

Description	Part Number
N Channel MOSFET, 650V, 7A, TO-220F	HMF07N65S

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