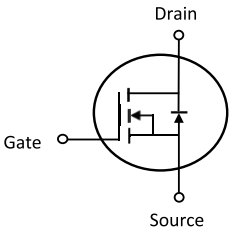
N Channel MOSFET

multicomp PRO

RoHS Compliant

Device Schematic



Applications

- Electronic Ballasts
- Electronic Transformer
- High Efficiency Switch Mode Power Supplies

Features

- $R_{DS(ON)}$ = 2Ω @ V_{GS} = 10V
- High Input Resistance
- Low on Resistance

Maximum Ratings @TA = +25°C

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	650	V
Gate-Source Voltage	V_{GSS}	±30	
Avalanche Current (Note 2.)	I_{AR}	4	A
Continuous Drain Current	I_D	4	
Pulsed Drain Current (Note 2.)	I_{DM}	16	
Single Pulsed Avalanche Energy (Note 3.)	E_{AS}	260	mJ
Repetitive Avalanche Energy (Note 2.)	E_{AR}	10.6	
Peak Diode Recovery dv/dt (Note 4.)	dv/dt	4.5	V/ns
Power Dissipation	P_D	36	W
Junction Temperature	T_j	150	°C
Operating Temperature Range	T_{OPR}	-55 to +150	
Storage Temperature Range	T_{STG}		

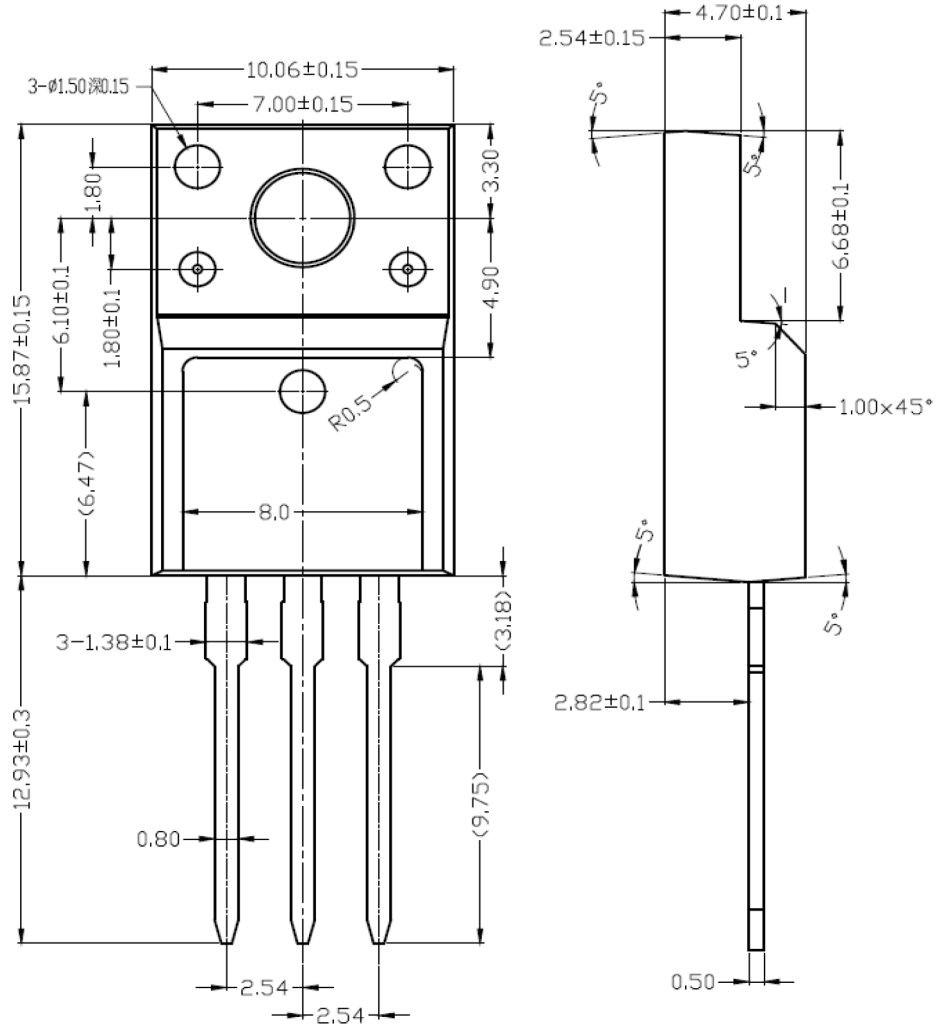
Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged.
2. Absolute maximum ratings are stress ratings only and functional device operation is not implied.
3. L = 30mH, IAS = 4A, VDD = 50V, RG = 25Ω, Starting TJ = 25°c
4. ISD ≤ 4.4A, di/dt ≤ 200A/μs, VDD ≤ BVDSS, Starting TJ = 25°c

Electrical Characteristics @TA = +25°C

Parameter	Test Conditions	Sym-bol	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250μA	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}	--		10	μA
ON Characteristics						
Gate-Threshold Voltage	V_{DS}=V_{GS}, I_D=250μA	$V_{th(GS)}$	2	--	4	V
Static Drain-Source On-State Resistance	V_{GS}=10V, I_D=2A	$R_{DS(ON)}$	--	2	2.4	Ω
Dynamic Characteristics						
Input Capacitance	V_{DS}=25V, V_{GS}=0V, F=1MHz	C_{ISS}	-	570	670	pF
Output Capacitance		C_{OSS}	-	70	90	
Reverse Transfer Capacitance		C_{RSS}	-	8	11	
Switching Characteristics						
Turn-On Delay Time	V_{DD}=325V, V_{GS}=4V, R_G=25Ω, (Note 1,2)	$t_{D(ON)}$	-	13	35	ns
Turn-On Rise Time		t_R		45	100	
Turn-Off Delay Time		$t_{D(OFF)}$		25	60	
Turn-Off Fall Time		t_F		35	80	
Switching Characteristics						
Total Gate Charge	V_{DS}=520V, V_{GS}=10V,I_D=4A, (Note 1,2)	Q_G	--	15	20	nC
Gate-Source Charge		Q_{GS}		3.4	--	
Gate-Drain Charge		Q_{GD}		7.1	--	
Drain-Source Diode Characteristics And Maximum Ratings						
Drain-Source Diode Forward Volta	I_S=4A, V_{GS}=0V	V_{SD}	-	--	1.4	V
Continuous Drain-Source Diode Forward Current		I_S		--	4.4	A
Pulsed Drain-Source Diode Forward Current		I_{SM}		--	17.6	
Reverse Recovery Time	V_{GS}=0V, I_S=4A, dI_F/dt=-100A/μs (Note 1)	t_{RR}		250	--	ns
Reverse Recovery Charge		Q_{RR}		1.5	--	μC
Notes:1. Pulse Test:Pulse Width ≤300us,Duty Cycle≤2%. 2. Essentially independent of operating temperature						

Dimensions : Millimetres

Outline Dimensions



Part Number Table

Description	Part Number
N Channel MOSFET, 650V, 4A, TO-220F	HMF04N65S