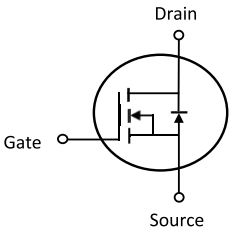
N Channel MOSFET

multicomp PRO

RoHS Compliant

Device Schematic



Applications

- Electronic Ballasts
- LED Power Supply
- High Efficiency Switch Mode Power Supplies

Features

- $R_{DS(ON)}$ = 0.5Ω @ V_{GS} = 10V
- High Switching Speed
- Avalanche Energy Specified

Maximum Ratings @TA = +25°C

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	650	V
Gate-Source Voltage	V_{GSS}	±30	
Continuous Drain Current	I_D	20	A
Pulsed Drain Current (Note 2.)	I_{DM}	40	
Single Pulsed Avalanche Energy (Note 3.)	E_{AS}	562	mJ
Peak Diode Recovery dv/dt (Note 4.)	dv/dt	2.46	V/ns
Power Dissipation	P_D	65	W
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	

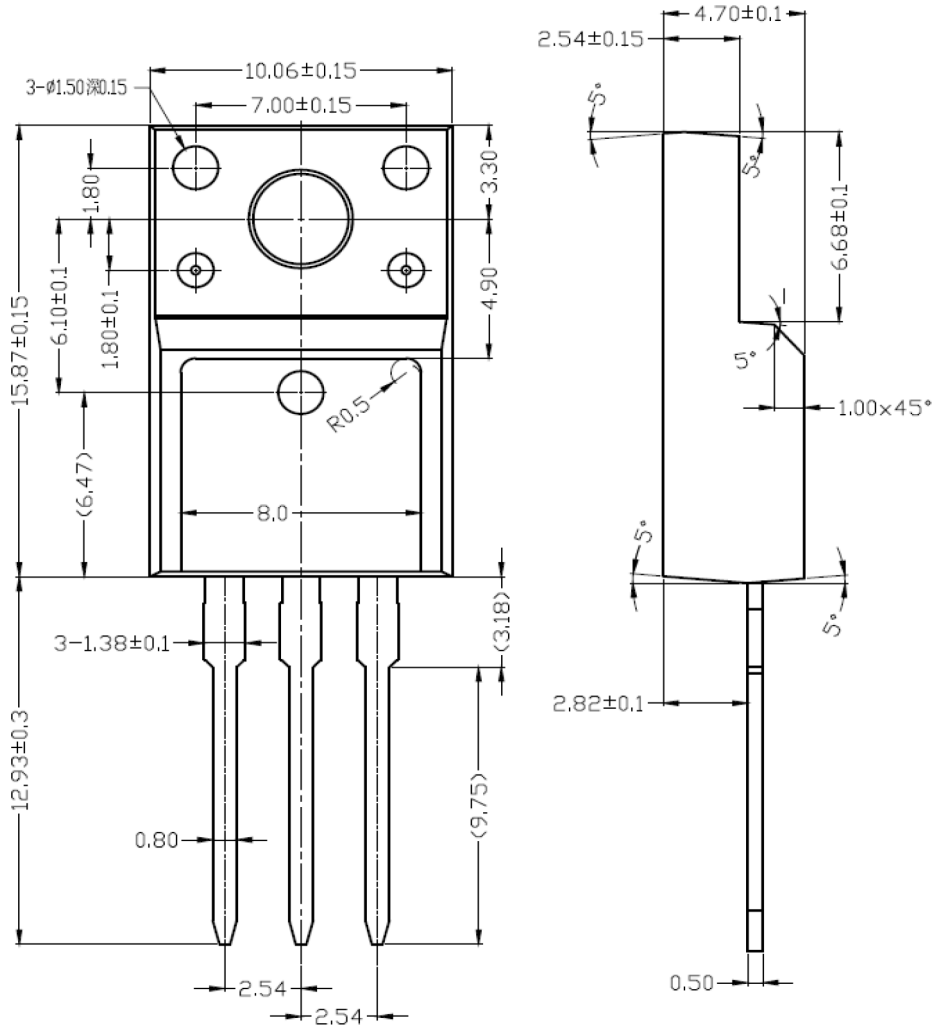
Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.
2. Repetitive Rating : Pulse width limited by maximum junction temperature.
3. L = 10mH, I_{AS} = 10.5A, V_{DD} = 50V, R_G = 25Ω, Starting T_J = 25°C
4. I_{SD} ≤ 20A, di/dt ≤ 200A/μs, V_{DD} ≤ BV_{DSS}, Starting T_J = 25°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=250μA	V_{DSS}	650	--	--	V
Gate-Source Leakage Current	V_{DS}=0V, V_{GS}=30V	I_{GSS}	--	--	100	nA
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= 10A	$R_{DS(ON)}$	--	--	0.5	Ω
Dynamic Characteristics						
Input Capacitance	V_{DS}=25V, V_{GS}=0V, F=1MHz	C_{ISS}	-	2512	--	pF
Output Capacitance		C_{OSS}	-	231		
Reverse Transfer Capacitance		C_{RSS}	-	14		
Switching Characteristics						
Turn-On Delay Time	V_{DD}=100V, V_{GS}=10V, I_D=20A,R_G=25Ω(Note 1,2)	$t_{D(ON)}$	-	28	--	ns
Turn-On Rise Time		t_R		35		
Turn-Off Delay Time		$t_{D(OFF)}$		140		
Turn-Off Fall Time		t_F		76		
Switching Characteristics						
Total Gate Charge (Note 1)	V_{DS}=100V, V_{GS}=10V, I_D=20A,I_G=1mA(Note 1,2)	Q_G	--	54	--	nC
Gate-Source Charge		Q_{GS}		10	--	
Gate-Drain Charge		Q_{GD}		13	--	
Drain-Source Diode Characteristics And Maximum Ratings						
Drain-Source Diode Forward Voltage(Note 1)	I_S=20A, V_{GS}=0V	V_{SD}	-	--	1.4	V
Maximum Body-Diode Continuous Current		I_S		--	20	A
Maximum Body-Diode Pulsed Current		I_{SM}		--	40	
Reverse Recovery Time(Note 1)	V_{GS}=0V, I_S=20A, dI_F/dt=-100A/μs (Note 1)	t_{RR}		506	--	ns
Reverse Recovery Charge		Q_{RR}		9	--	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, 20A, TO-220F	HMF20N65S