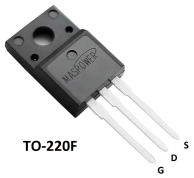
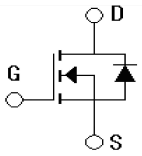
Features

- V_{DS}=900V,I_D=15A
- Low Crss
- Low gate charge
- Improved dv/dt capability



Applications

- High efficiency switch mode power supplies
- Electronic lamp ballasts based on half bridge
- UPS



Absolute Ratings (Tc=25℃)

Parameter	Symbol		Limit	Unit
Drain-Source Voltage	V_{DSS}		900	V
Gate-Source Voltage	V_{GSS}		±20	V
Drain Current-continuous	I_D	T_C=25℃	15	A
		T_C=100℃	10	
Drain Current-pulse(1)	I_{DM}		60	A
Single Pulsed Avalanche Energy (T_j=25℃,I_{AS}=12A,V_{DD}=50V,V_{GS}=10)	E_{AS}		720	mJ
Maximum Power Dissipation	PD		67.9	W
			0.54	W/℃
Operating and Storage Temperature Range	T_J,T_{STG}		-55~+150	℃

1. Pulse width Limited by safe operating area

Electrical Characteristics(T_{CASE}=25℃ unless otherwise specified)

Parameter	Symbol	Tests conditions		Min	Typ	Max	Units
Drain-Source Voltage	BV_{DSS}	I_D=250μA,V_{GS}=0V		900	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=V_{DSS}, V_{GS}=0V,	Tc=25℃	-	-	1	μA
			Tc=125℃	-	-	100	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±20V,V_{DS}=0V		-	-	±100	nA
On-Characteristics							
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250μA		2.8	3.6	4.4	V

Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=15V,I_D=10A	-	0.37	0.45	Ω
Forward Transconductance	g_{fs}	V_{DS}=40V,I_D=10A	-	8.5	-	S
Dynamic Characteristics						
Input capacitance	C_{iss}	V_{DS}=25V, V_{GS}=0V, f=1.0MHZ	-	1700	-	pF
Output capacitance	C_{oss}		-	310	-	pF
Reverse transfer capacitance	C_{rss}		-	30	-	pF

Electrical Characteristics(T_{CASE}=25℃ unless otherwise specified)

Parameter	Symbol	Tests conditions	Min	Typ	Max	Units
Switching-Characteristics						
Turn-On delay time	$t_{d(on)}$	V_{DS}=450V,I_D=15A, V_{GS}=10V,R_G=25Ω	-	34	-	ns
Turn-On rise time	t_r		-	36	-	ns
Turn-Off delay time	$t_{d(Off)}$		-	120	-	ns
Turn-Off rise time	t_f		-	32	-	ns
Total Gate Charge	Q_g	V_{DS}=450V,I_D=15A, V_{GS}=10V	-	28	-	nC
Gate-Source charge	Q_{gs}		-	9	-	nC
Gate-Drain charge	Q_{gd}		-	10	-	nC
Drain-Source Diode Characteristics and Maximum Ratings						
Maximum Continuous Drain-Source Diode Forward Curret	V_{SD}	V_{GS}=0V,I_S=1A	-	0.72	1.2	V
Diode Forward Current	I_S		-	-	15	A
Reverse recovery time	Trr	I_S=15A,di_F/dt=100A/μs VR=100V,VGS=0V,	-	335	-	ns
Reverse recovery charge	Qrr		-	2437	-	nC
Reverse recovery current	Irr		-	12.5	-	A

Thermal Characteristic

Parameter	Symbol	Value	Unit
Thermal Resistance,junction to Case	R_{th}(j-C)	1.84	℃/W
Thermal Resistance,junction to Ambient	R_{th}(j-A)	62.5	℃/W

Order information

Order codes	Package	Packaging
MS15N90HGT1	T0-220F	Tube

Notes:

1：Pulse width limited by maximum junction temperature

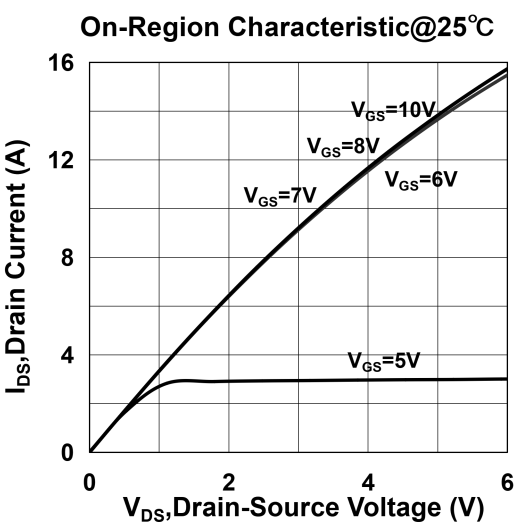
2：L=15mH, IAS=11A, VDD=50V, RG=25 Ω,Starting TJ=25℃

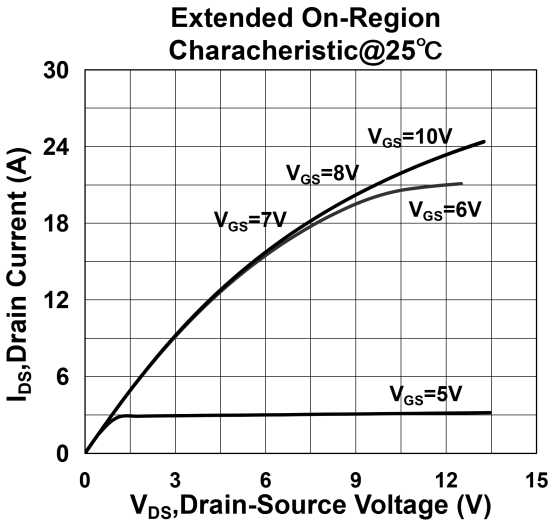
3：ISD ≤11A,di/dt ≤200A/μs,VDD≤BVDSS, Starting TJ=25℃

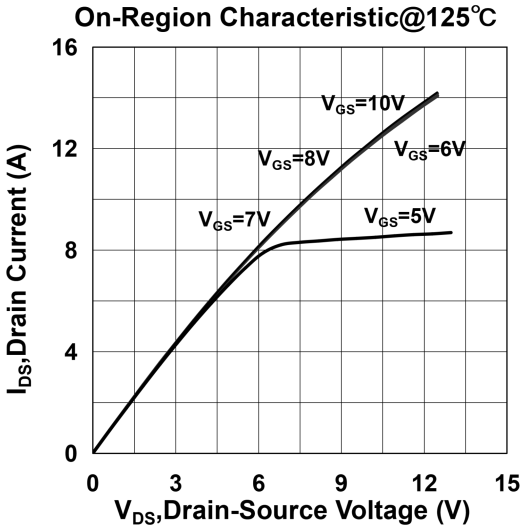
4：Pulse Test：Pulse Width ≤300μs,Duty Cycle≤2%

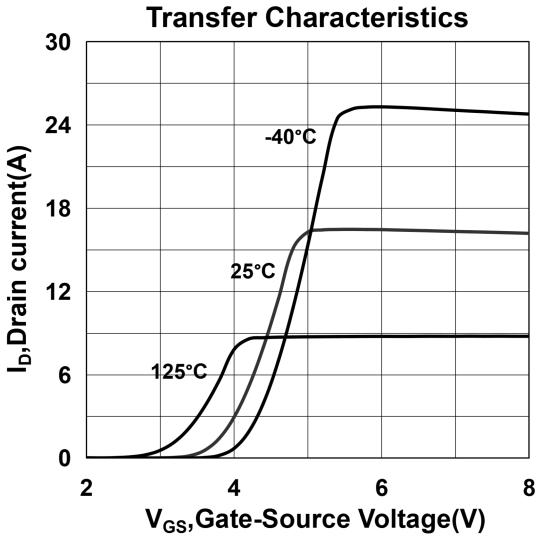
5：Essentially independent of operating temperature

Electrical Characteristics

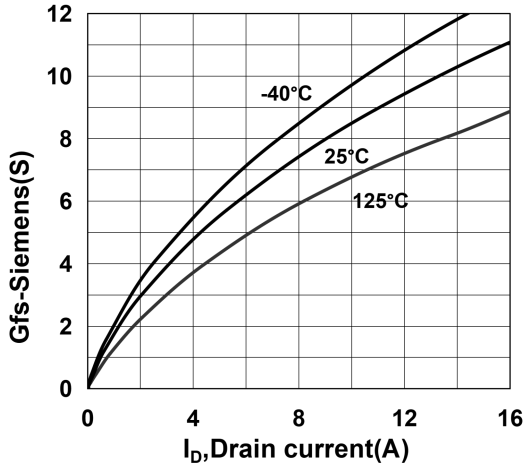




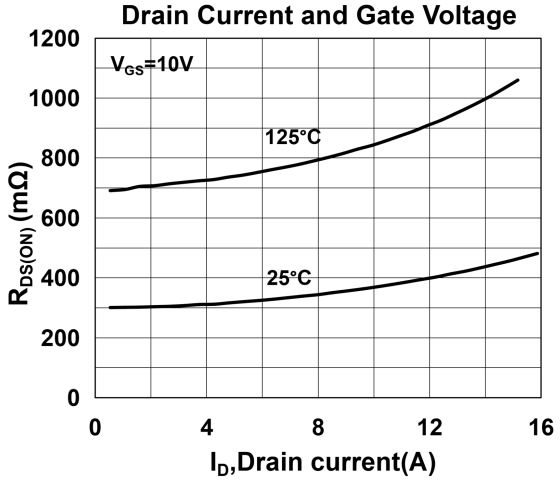




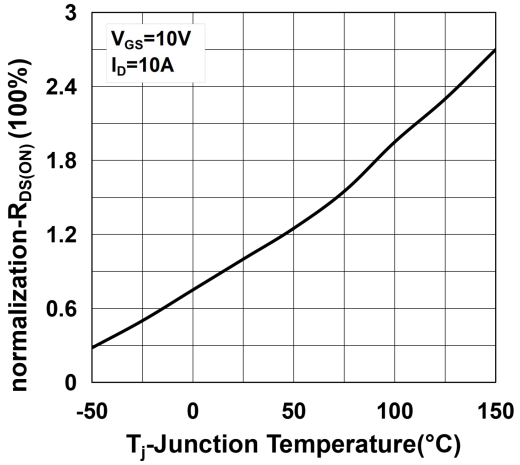
Transconductance



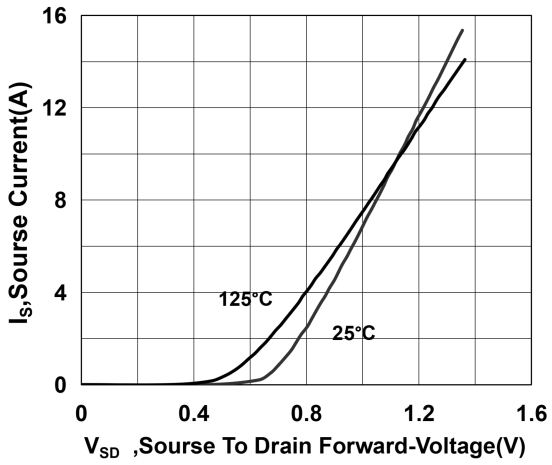
On-Resistance Variation vs Drain Current and Gate Voltage



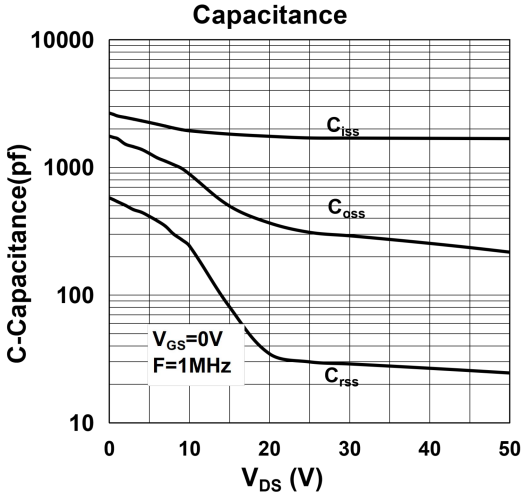
Normalization On-Resistance Variation vs Junction Temperature



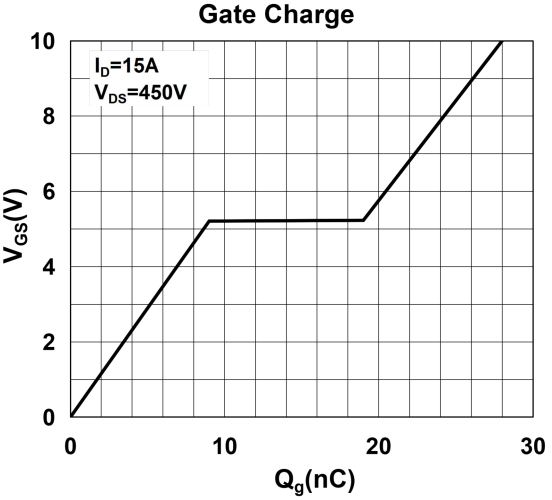
Body Diode Forward Voltage Variation with Sourse Current and Temperature



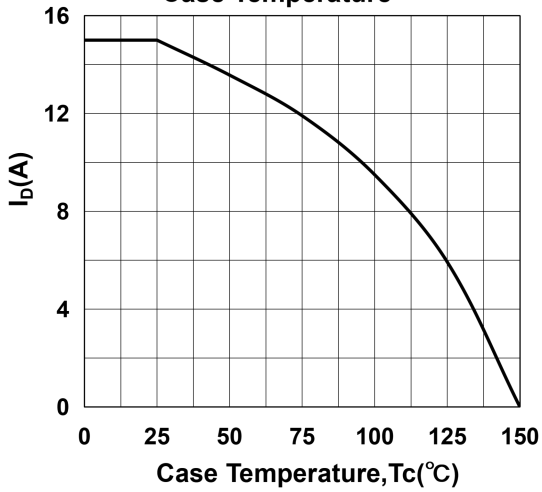
Capacitance



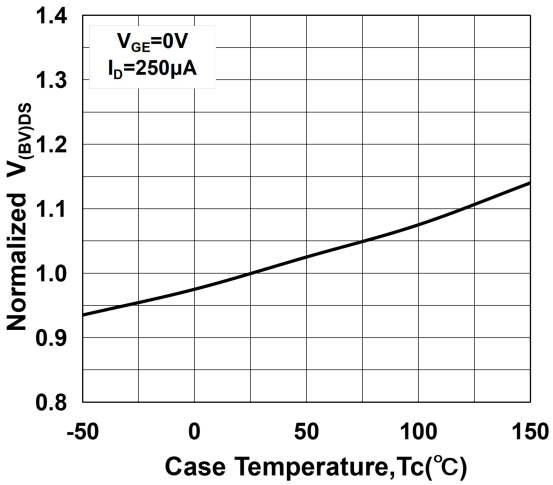
Gate Charge



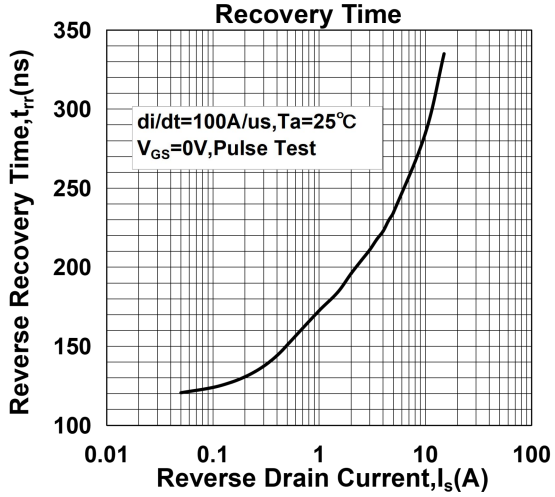
Maximum Drain Current vs Case Temperature



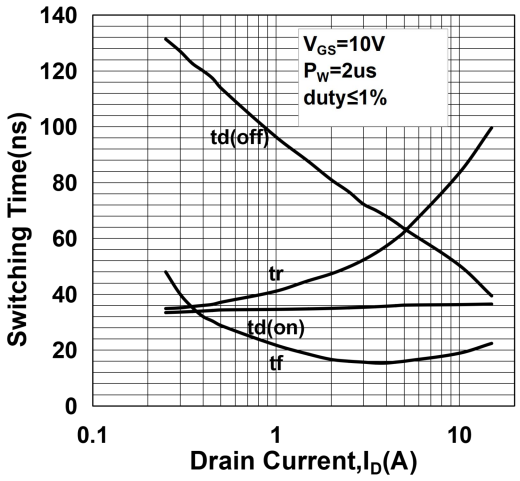
Normalized $V_{(BV)DS}$ vs temperature



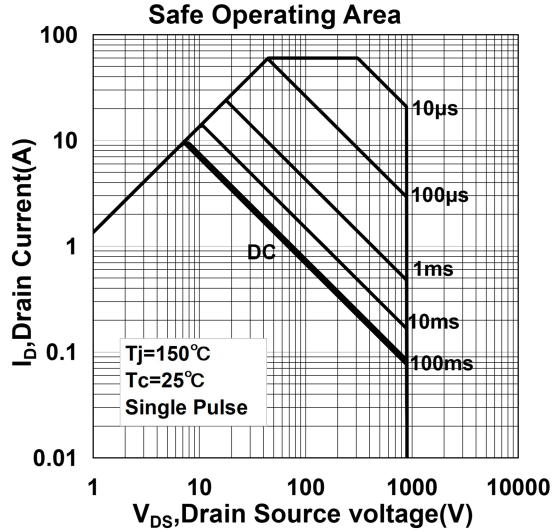
Body to Drain Diode Reverse Recovery Time



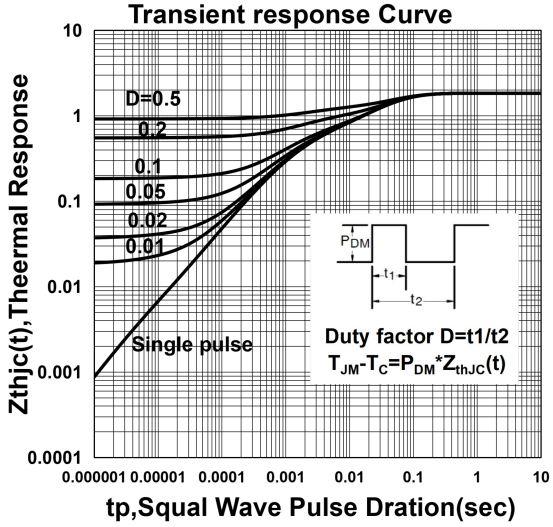
Switching Characteristics



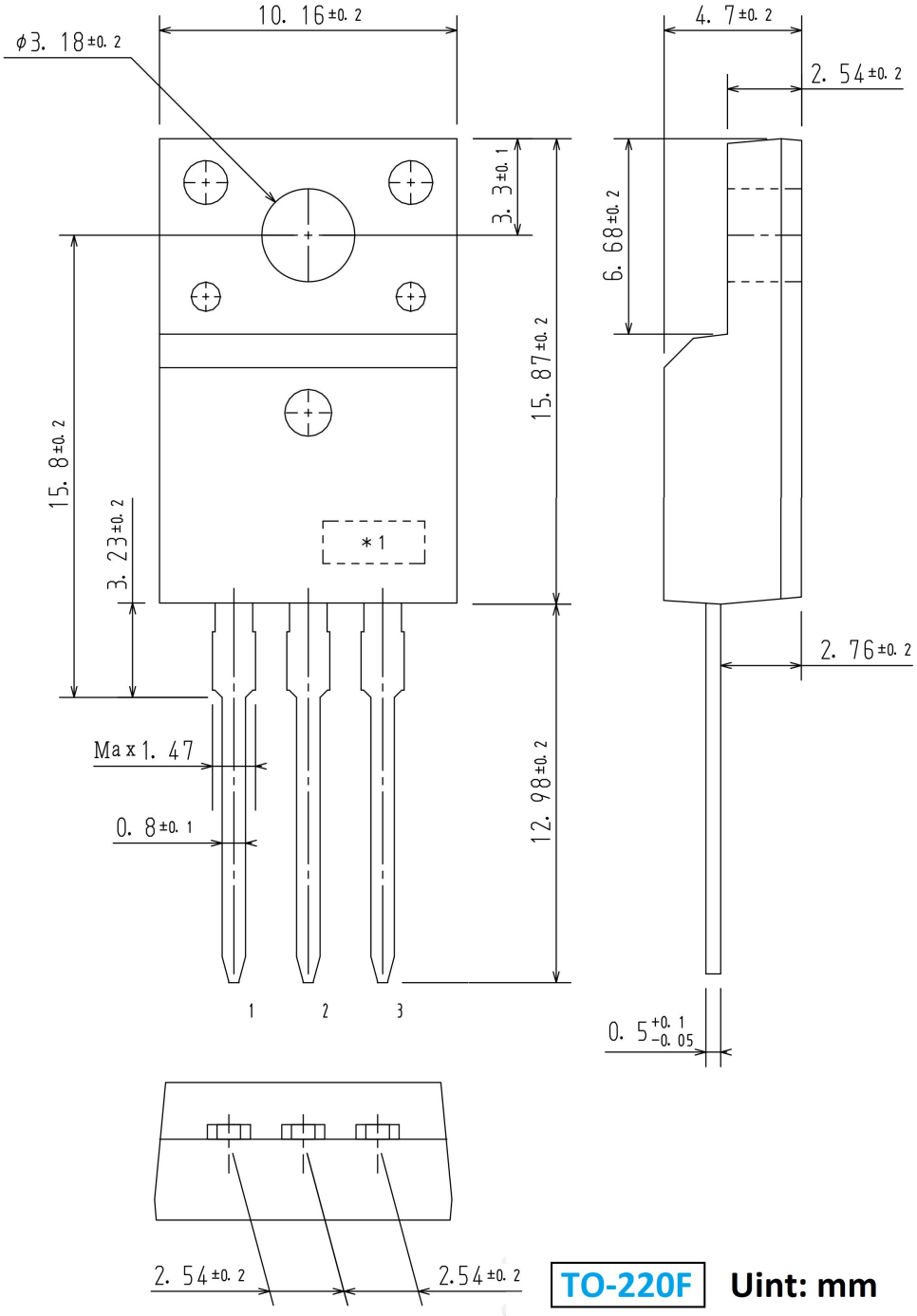
Safe Operating Area



Transient response Curve



Package Mechanical Data



TO-220F **Uint: mm**