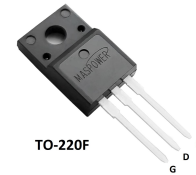


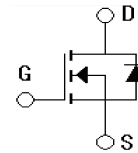
Features

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



Applications

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



Absolute Ratings ($T_c=25^\circ C$)

Parameter	Symbol		Limit	Unit
Drain-Source Voltage	V _{DSS}		900	V
Transient Gate-Source Voltage	V _{GSM}		±30	V
Continuous 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($T_{CASE}=25^\circ C$ unless otherwise specified)

Parameter	Symbol	Tests conditions	Min	Typ	Max	Units
Drain-Source Voltage	BV_{DSS}	$I_D=250\mu A, V_{GS}=0V$	900	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=V_{DSS}, T_c=25^\circ C$	-	-	1	μA
		$V_{GS}=0V, T_c=125^\circ C$	-	-	100	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
On-Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	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($T_{CASE}=25^{\circ}C$ 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	T _{rr}	I _S =15A,di _F /dt=100A/μs VR=100V,VGS=0V,	-	335	-	ns
Reverse recovery charge	Q _{rr}		-	2437	-	nC
Reverse recovery current	I _{rr}		-	12.5	-	A

Thermal Characteristic

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

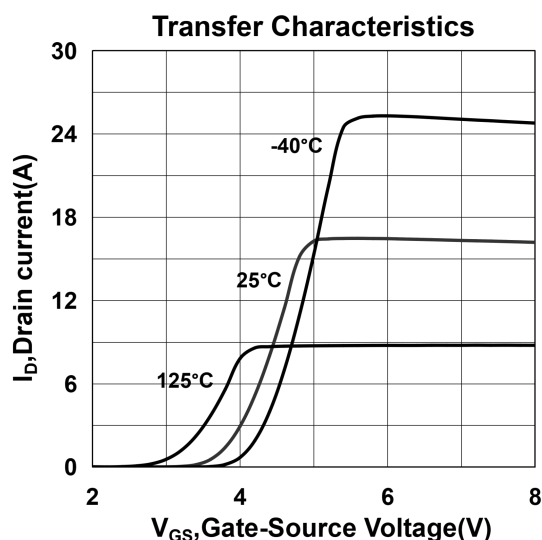
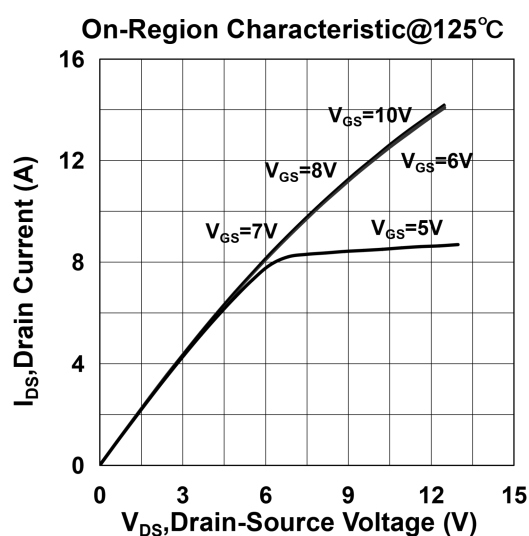
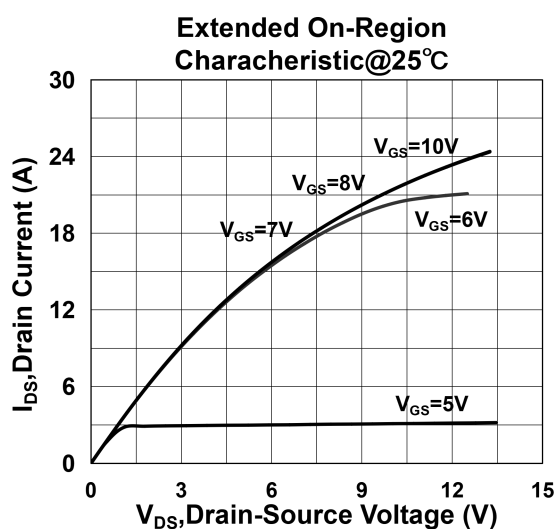
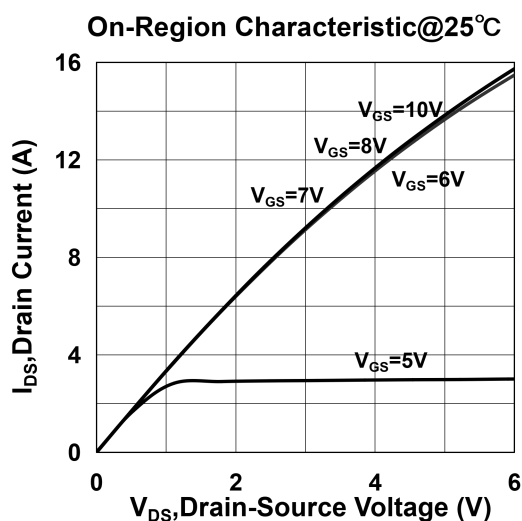
Order information

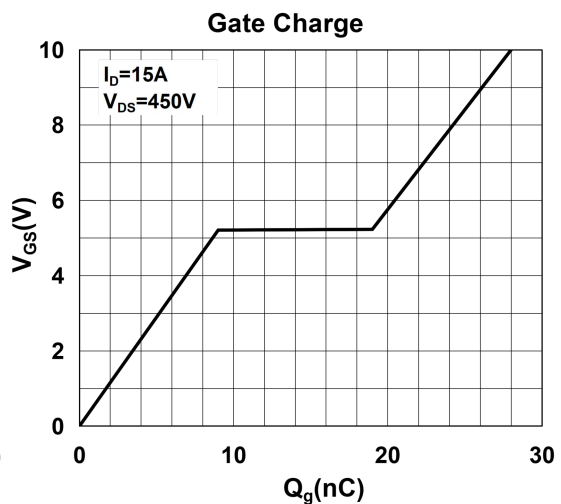
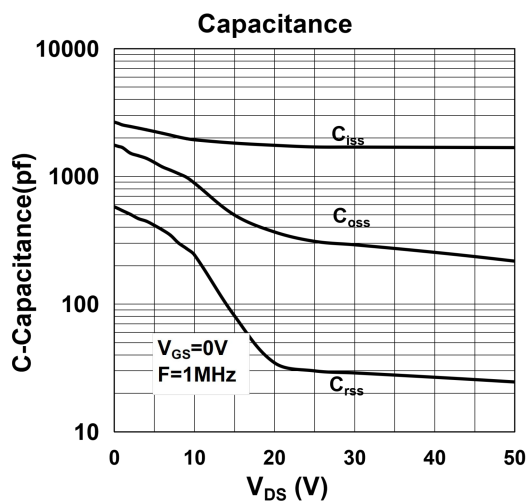
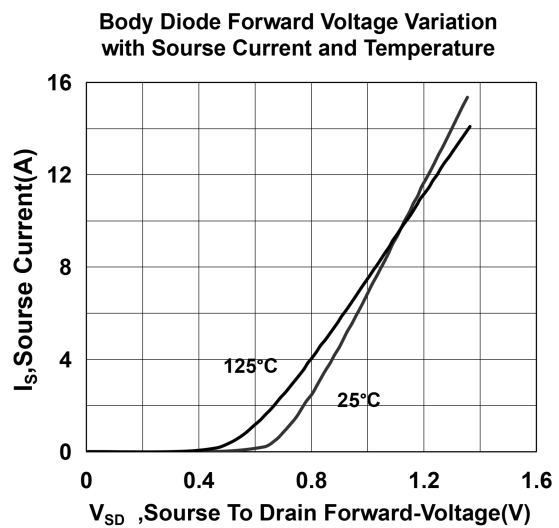
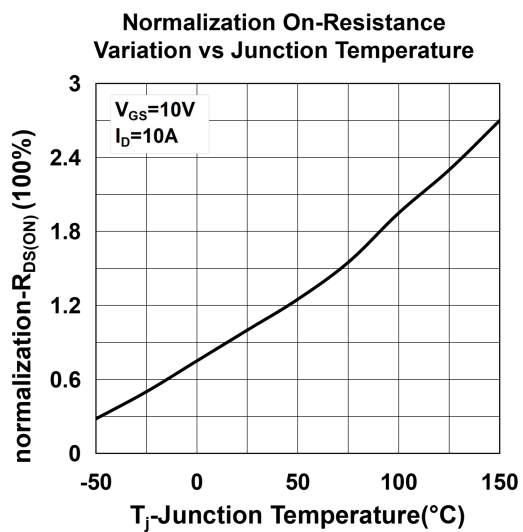
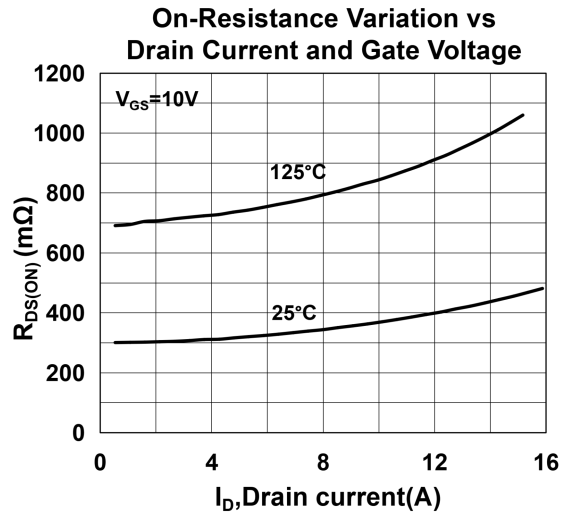
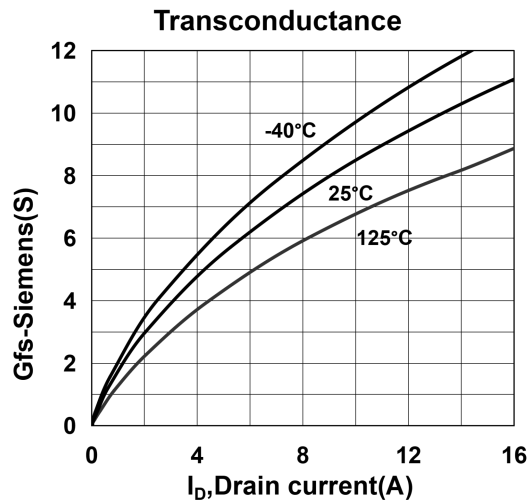
Order codes	Package	Packaging
MS15N90HGT1	T0-220F	Tube

Notes:

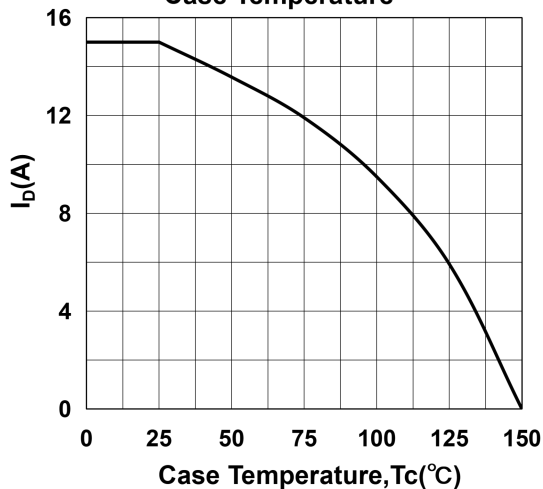
- 1: Pulse width limited by maximum junction temperature
- 2: $L=15\text{mH}$, $I_{AS}=11\text{A}$, $V_{DD}=50\text{V}$, $R_G=25\ \Omega$, Starting $T_J=25^\circ\text{C}$
- 3: $I_{SD} \leq 11\text{A}$, $di/dt \leq 200\text{A}/\mu\text{s}$, $V_{DD} \leq B_{VDS}$, Starting $T_J=25^\circ\text{C}$
- 4: Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$
- 5: Essentially independent of operating temperature

Electrical Characteristics

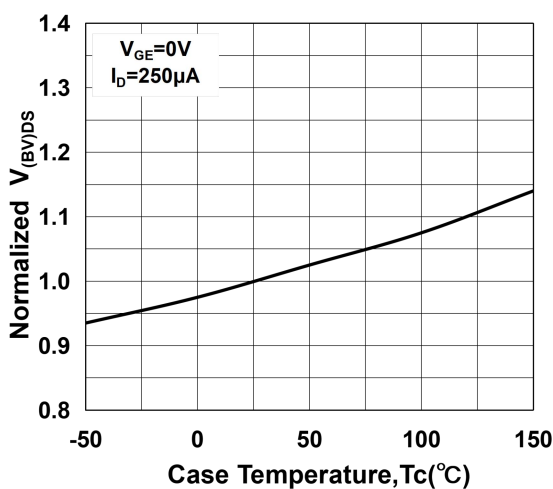




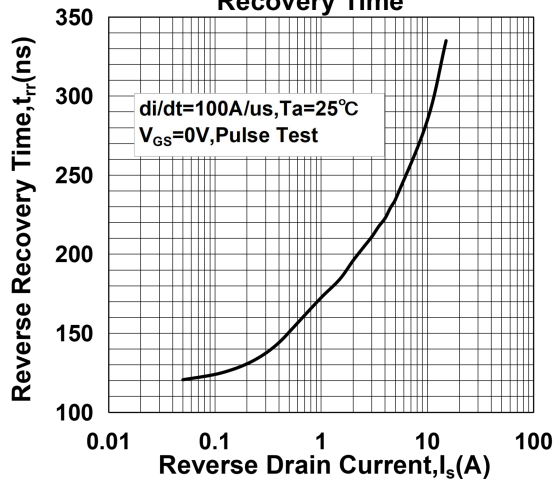
Maximum Drain Current vs Case Temperature



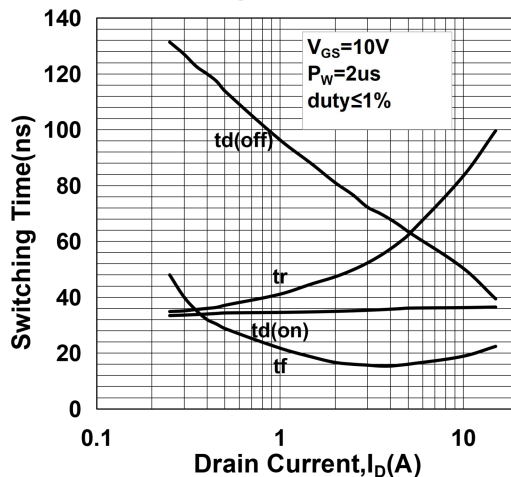
Normalized $V_{(BV)DS}$ vs temperature



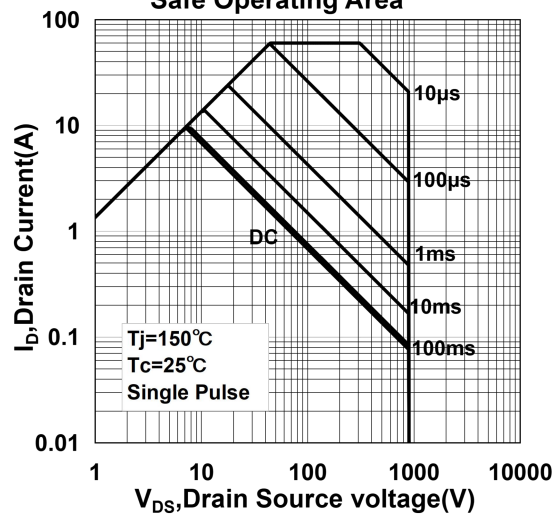
Body to Drain Diode Reverse Recovery Time



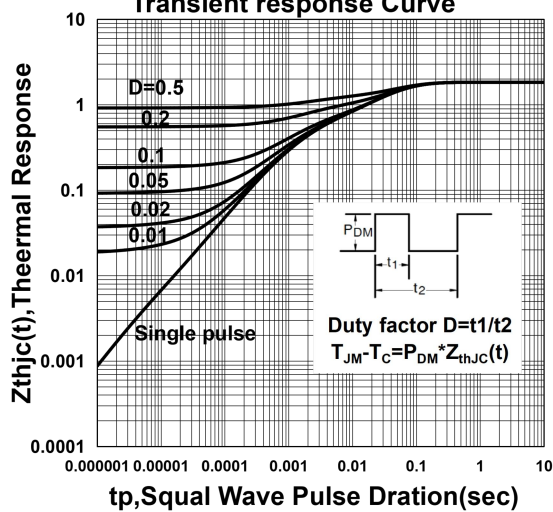
Switching Characteristics



Safe Operating Area



Transient response Curve



Package Mechanical Data

