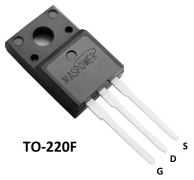
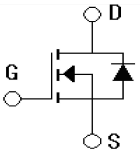
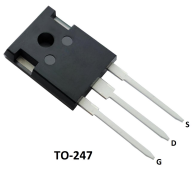
Features

- V_{DS}=1000V,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}	1000	V
Gate-Source Voltage	V_{GSS}	±30	V
Drain Current-continuous	I_D TC=25℃	15	A
	TC=100℃	10	
Drain Current-pulse(note1)	I_{DM}	26	A
Single Pulsed Avalanche Energy (T_j=25℃,I_{AR}=4A,V_{DD}=50V)(note2)	E_{AS}	188	mJ
Maximum Power Dissipation (TO-247)	PD	400	W
		3.2	W/℃
Maximum Power Dissipation (TO-220F)	PD	67.9	W
		0.54	W/℃
Peak Diode Recovery voltage slope(2)	dv/dt	0.75	V/ns
Operating and Storage Temperature Range	T_J,T_{STG}	-55~+175	℃

1. Pulse width Limited by safe operating arer

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	1000	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=V_{DSS},V_{GS}=0V, Tc=25℃	-	-	1	μA
		Tc=125℃	-	-	10	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±30V,V_{DS}=0V	-	-	±100	nA

On-Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250μA	3.0	-	5.0	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V,I_D=7.5A	-	0.90	1.10	Ω
Forward Transconductance	g_{fs}	V_{DS}=40V,I_D=4A (note3)	-	13	-	S
Dynamic Characteristics						
Input capacitance	C_{iss}	V_{DS}=25V, V_{GS}=0V, f=1.0MHZ	-	1846	-	pF
Output capacitance	C_{oss}		-	191	-	pF
Reverse transfer capacitance	C_{rss}		-	10	-	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}=750V,I_D=4A, V_{GS}=10V,R_G=25Ω (note3,4)	-	26	-	ns
Turn-On rise time	t_r		-	35	-	ns
Turn-Off delay time	$t_{d(Off)}$		-	142	-	ns
Turn-Off rise time	t_f		-	53	-	ns
Total Gate Charge	Q_g	V_{DS}=750V,I_D=4A, V_{GS}=10V (note 3,4)	-	44	-	nC
Gate-Source charge	Q_{gs}		-	10	-	nC
Gate-Drain charge	Q_{gd}		-	15	-	nC
Drain-Source Diode Characteristics and Maximum Ratings						
Maximum Continuous Drain-Source Diode Forward Curret	V_{SD}	V_{GS}=0V,I_S=15A	-	-	1.2	V
Diode Forward Current	I_S		-	-	15	A
Reverse recovery time	Trr	I_S=4A,dI/dT=100A/μS VR=100V,VGS=0V, Tj=150℃(note4)	-	470	-	nS
Reverse recovery charge	Qrr		-	3.4	-	μC

Thermal Characteristic

Parameter	Symbol	Value		Unit
		TO-247	TO-220F	
Thermal Resistance,junction to Case	R_{th}(j-C)	0.4	1.84	℃/W
Thermal Resistance,junction to Ambient	R_{th}(j-A)	36	62.5	℃/W

Order information

Order codes	Package	Packaging
MS15N100HGC0	TO-247	Tube
MS15N100HGT1	T0-220F	Tube

Notes:

1：Pulse width limited by maximum junction temperature

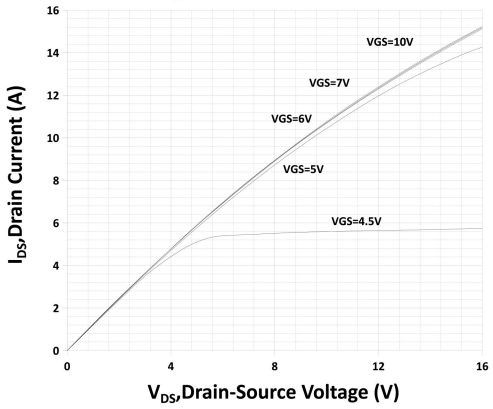
2：L=15mH, IAS=5A, VDD=50V, RG=25 Ω,Starting TJ=25℃

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

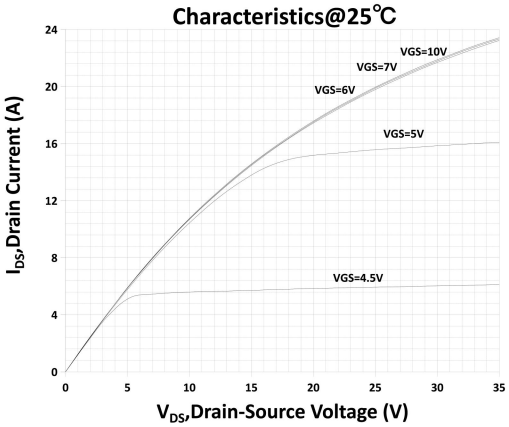
4：Essentially independent of operating temperature

Electrical Characteristics

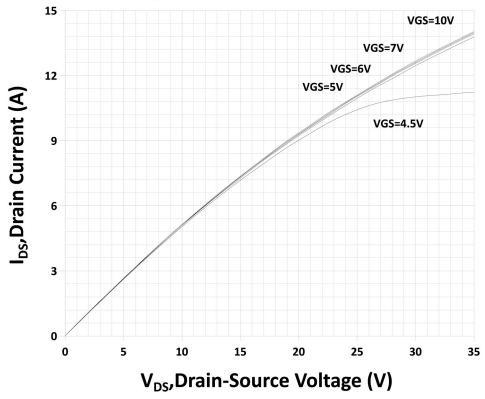
On-Region Characteristics@25℃



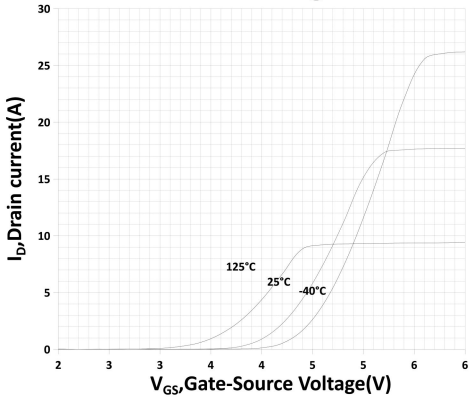
Extended On-Region Characteristics@25℃



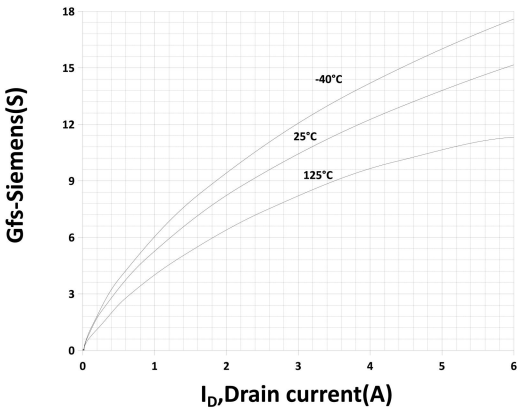
On-Region Characteristics@125℃



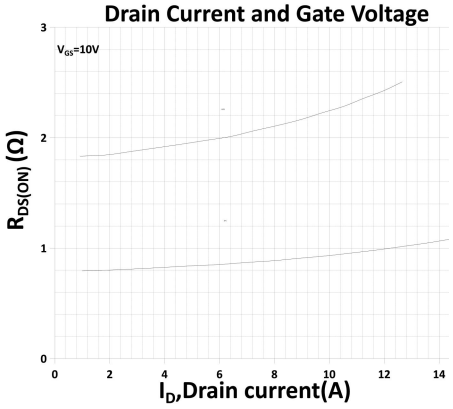
Extended On-Region Characteristics @25℃



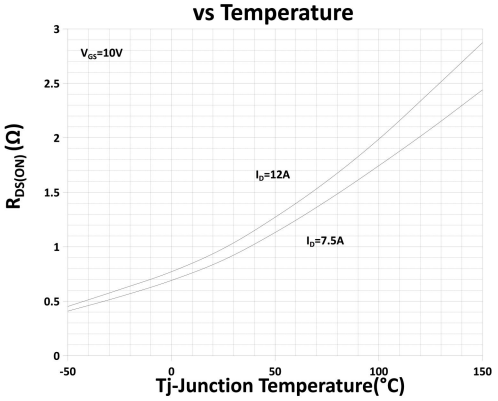
Transconductance



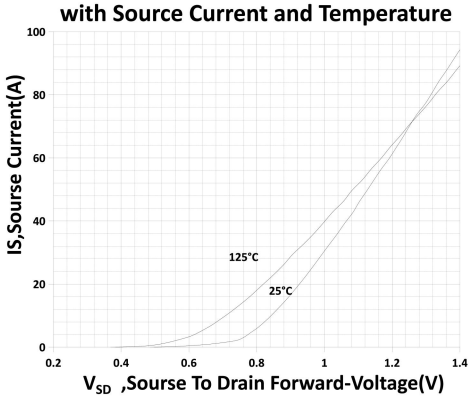
On-Resistance Variation vs Drain Current and Gate Voltage



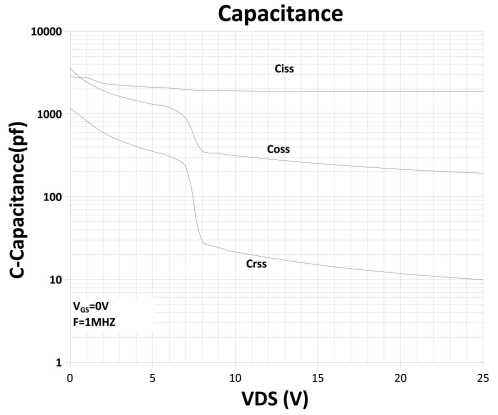
On-Resistance Variation vs Temperature



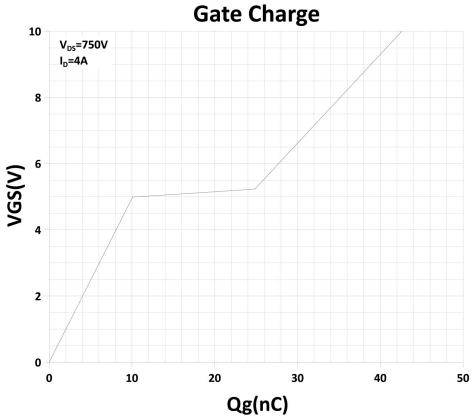
Body Diode Forward Voltage Variation with Source Current and Temperature



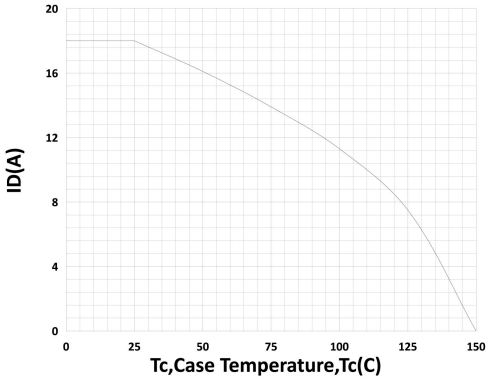
Capacitance



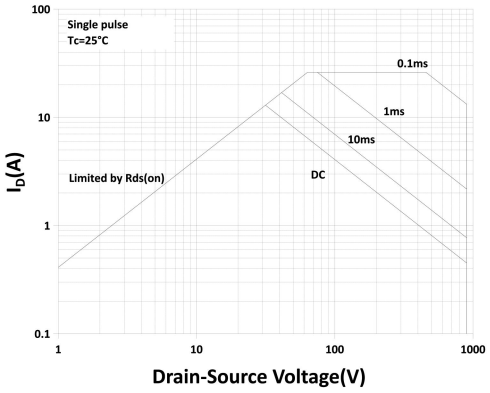
Gate Charge



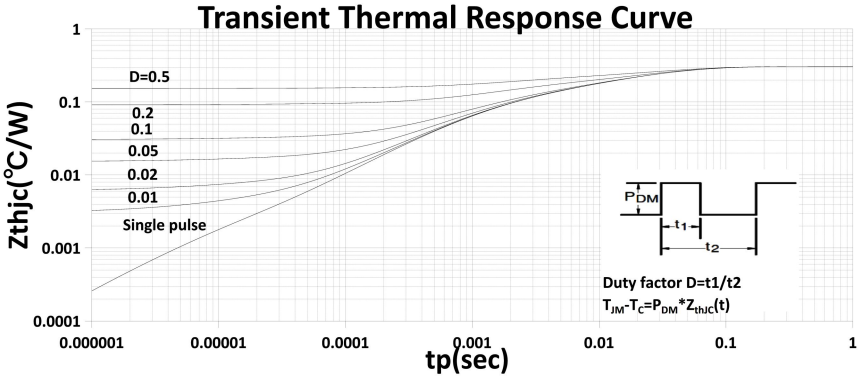
Maximum Drain Current vs Case Temperature



SOA



Transient Thermal Response Curve



Package Mechanical Data