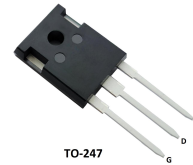
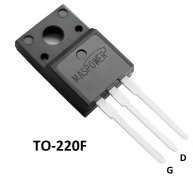
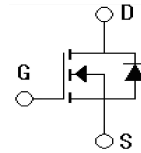


Features

- $V_{DS}=1000V, I_D=15A$
- 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 ($T_c=25^\circ\text{C}$)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DSS}	1000	V
Transient Gate-Source Voltage	V_{GSM}	± 30	V
Continuous Gate-Source Voltage	V_{GSS}	± 20	V
Drain Current-continuous	I_D	$T_c=25^\circ\text{C}$	A
		$T_c=100^\circ\text{C}$	
Drain Current-pulse(note1)	I_{DM}	26	A
Single Pulsed Avalanche Energy ($T_j=25^\circ\text{C}, I_{AR}=4A, V_{DD}=50V$)(note2)	E_{AS}	188	mJ
Maximum Power Dissipation (TO-247)	PD	312	W
		2.5	W/ $^\circ\text{C}$
Maximum Power Dissipation (TO-220F)	PD	67	W
		0.54	W/ $^\circ\text{C}$
Peak Diode Recovery voltage slope ⁽²⁾	dv/dt	0.75	V/ns
Operating and Storage Temperature Range	T_J, T_{STG}	-55~+150	$^\circ\text{C}$

1. Pulse width Limited by safe operating area

Electrical Characteristics($T_{CASE}=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Tests conditions	Min	Typ	Max	Units
Drain-Source Voltage	BV_{DSS}	$I_D=250\mu A, V_{GS}=0V$	1000	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=V_{DSS}, V_{GS}=0V, T_c=25^\circ\text{C}$	-	-	1	μA
		$T_c=125^\circ\text{C}$	-	-	10	μA

Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
On-Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	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($T_{CASE}=25^{\circ}C$ 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 Current	V _{SD}	V _{GS} =0V,I _S =15A	-	-	1.2	V
Diode Forward Current	I _S		-	-	15	A
Reverse recovery time	T _{rr}	I _S =4A,-di/dt=100A/μs V _R =100V,V _{GS} =0V, T _J =150℃(note4)	-	470	-	ns
Reverse recovery charge	Q _{rr}		-	3.4	-	μC

Thermal Characteristic

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

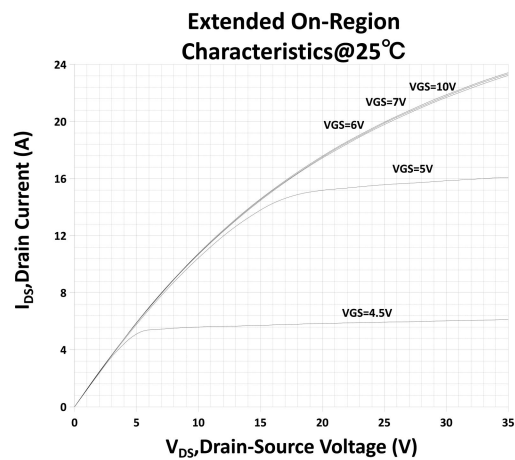
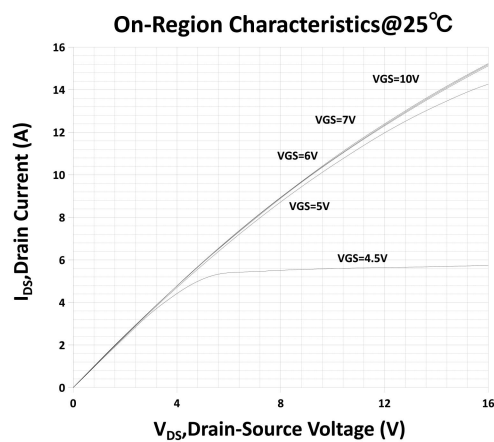
Order information

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

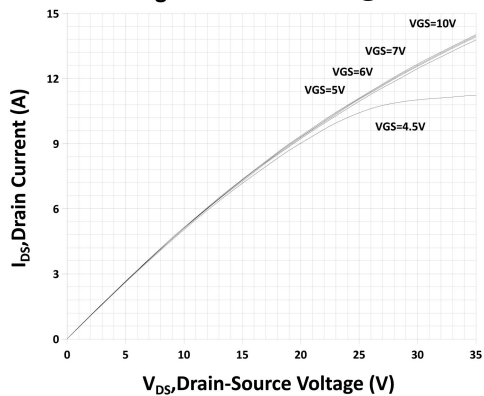
Notes:

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

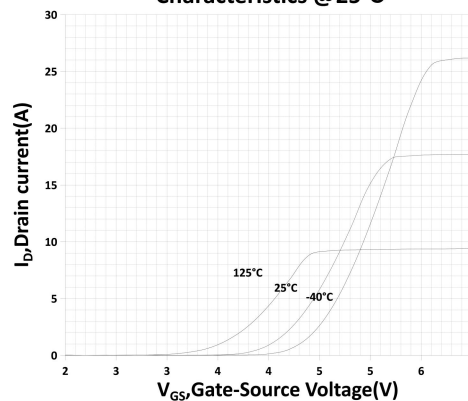
Electrical Characteristics



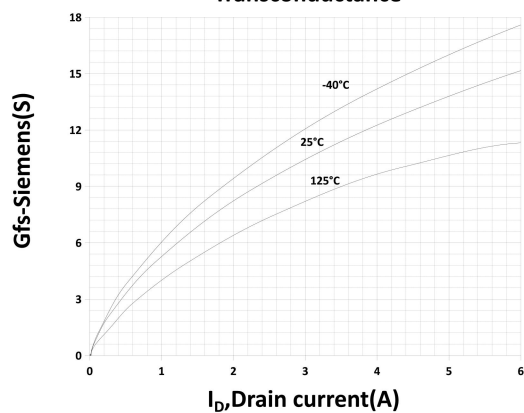
On-Region Characteristics@125°C



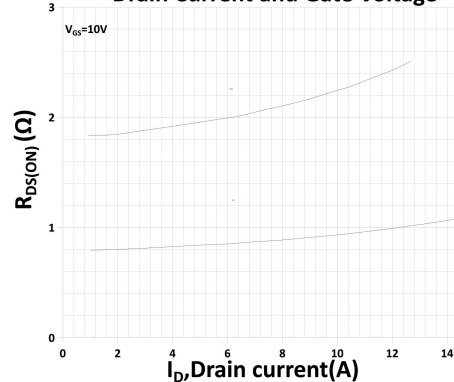
Extended On-Region Characteristics @25°C



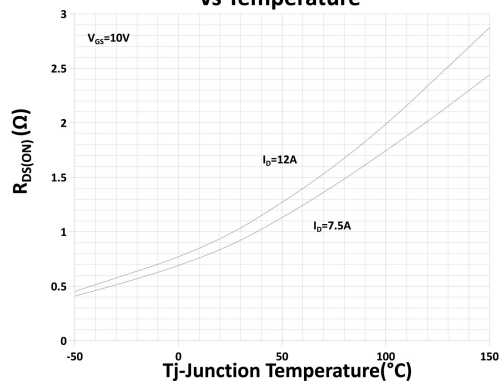
Transconductance



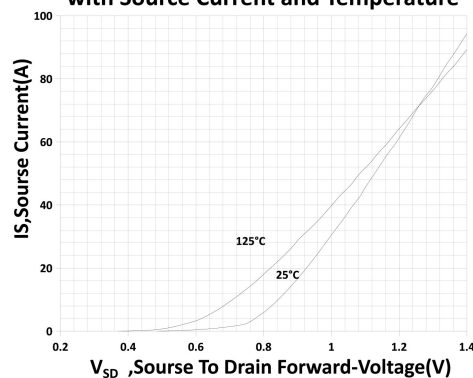
On-Resistance Variation vs Drain Current and Gate Voltage

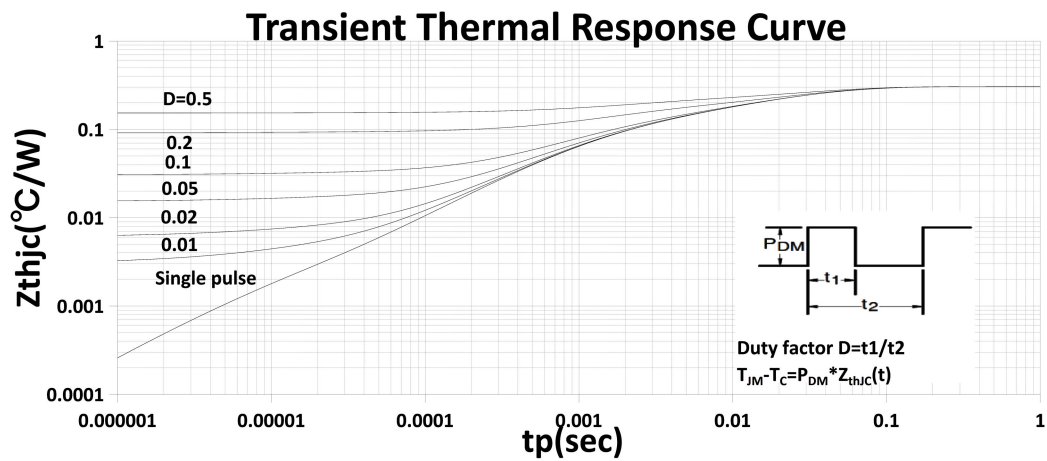
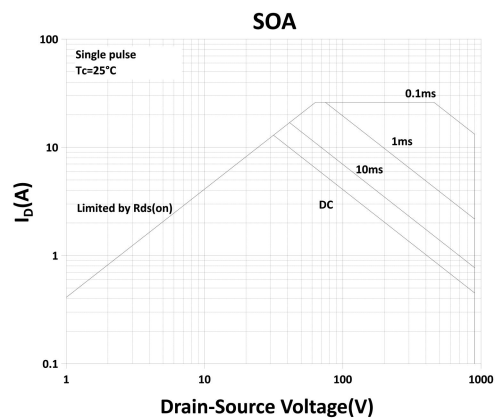
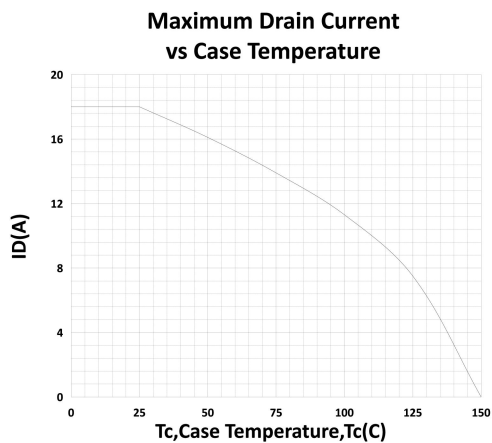
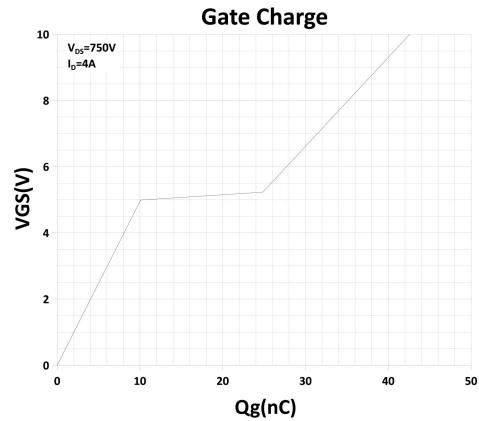
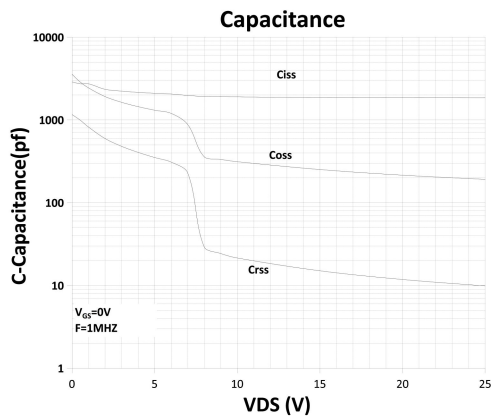


On-Resistance Variation vs Temperature



Body Diode Forward Voltage Variation with Source Current and Temperature





Package Mechanical Data

