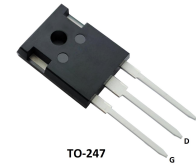
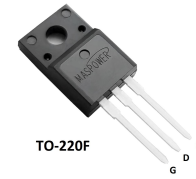
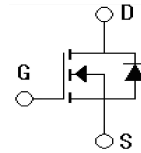


Features

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

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DSS}	1000	V
Gate-Source Voltage	V_{GSS}	± 30	V
Drain Current-continuous	I_D $T_C=25^\circ C$	15	A
	$T_C=100^\circ C$	10	
Drain Current-pulse ⁽¹⁾	I_{DM}	60	A
Single Pulsed Avalanche Energy ($T_j=25^\circ C, I_{AR}=4A, V_{DD}=50V$)	E_{AS}	2109	mJ
Maximum Power Dissipation (TO-247)	PD	277	W
		2.22	W/ $^\circ C$
Maximum Power Dissipation (TO-220F)	PD	67.9	W
		0.54	W/ $^\circ C$
Peak Diode Recovery voltage slope ⁽²⁾	dv/dt	4.1	V/ns
Operating and Storage Temperature Range	T_J, T_{STG}	-55~+175	$^\circ C$

1. Pulse width Limited by safe operating arer

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

Parameter	Symbol	Tests conditions	Min	Typ	Max	Units
Drain-Source Voltage	BV_{DSS}	$I_D=250\mu A, V_{GS}=0V$	1000	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=V_{DSS}, V_{GS}=0V, T_C=25^\circ C$	-	-	1	μA
		$T_C=125^\circ C$	-	-	10	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 30V, V_{DS}=0V$	-	-	± 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}	$V_{DS}=40V, I_D=4A$	-	8.5	-	S
Dynamic Characteristics						
Input capacitance	C_{iss}	$V_{DS}=25V,$ $V_{GS}=0V,$ $f=1.0MHz$	-	2700	-	pF
Output capacitance	C_{oss}		-	210	-	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	$t_{d(on)}$	$V_{DS}=750V, I_D=4A,$ $V_{GS}=10V, R_G=25\Omega$	-	53	-	ns
Turn-On rise time	t_r		-	97	-	ns
Turn-Off delay time	$t_{d(off)}$		-	210	-	ns
Turn-Off rise time	t_f		-	112	-	ns
Total Gate Charge	Q_g	$V_{DS}=750V, I_D=4A,$ $V_{GS}=10V$	-	61	-	nC
Gate-Source charge	Q_{gs}		-	22	-	nC
Gate-Drain charge	Q_{gd}		-	19	-	nC
Drain-Source Diode Characteristics and Maximum Ratings						
Maximum Continuous Drain-Source Diode Forward Current	I_{SD}	$V_{GS}=0V, I_S=15A$	-	-	1.4	V
Diode Forward Current	I_S		-	-	15	A
Reverse recovery time	T_{rr}	$I_S=4A, di/dT=100A/\mu S$	-	435	-	nS
Reverse recovery charge	Q_{rr}	$V_R=100V, V_{GS}=0V,$ $T_j=150^\circ C$	-	2437	-	nC

Thermal Characteristic

Parameter	Symbol	Value		Unit
		TO-247	TO-220F	
Thermal Resistance, junction to Case	$R_{th(j-C)}$	0.45	1.84	°C/W
Thermal Resistance, junction to Ambient	$R_{th(j-A)}$	40	62.5	°C/W

Order information

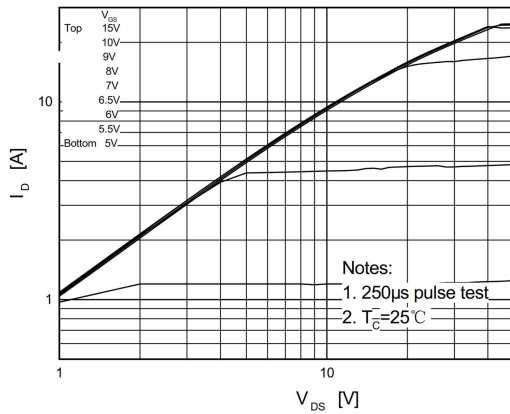
Order codes	Package	Packaging
MS15N100HGC0	TO-247	Tube
MS15N100HGT1	TO-220F	Tube

Notes:

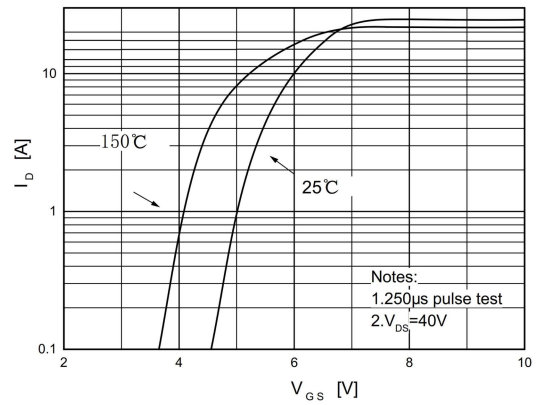
- 1: Pulse width limited by maximum junction temperature
- 2: L=15mH, IAS=11A, VDD=50V, RG=25 Ω, Starting T_J=25°C
- 3: ISD ≤11A, di/dt ≤200A/μs, VDD≤BVDSS, Starting T_J=25°C
- 4: Pulse Test: Pulse Width ≤300μs, Duty Cycle≤2%
- 5: Essentially independent of operating temperature

Electrical Characteristics

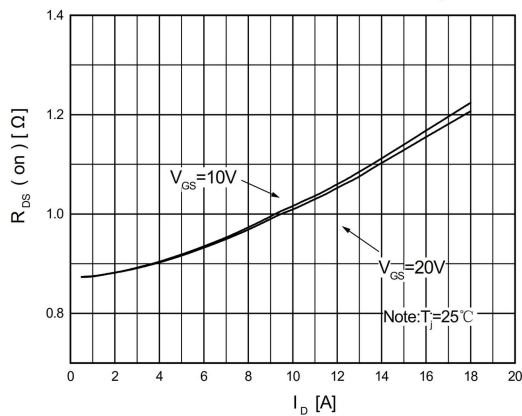
On-Region Characteristics



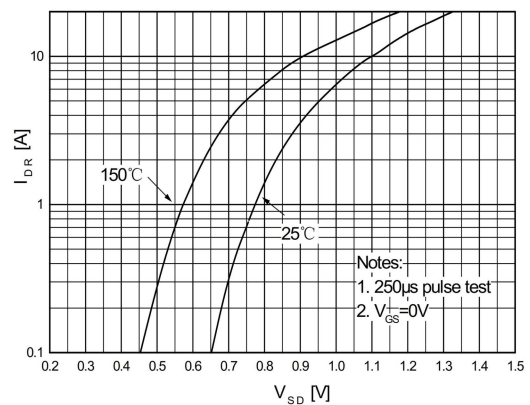
Transfer Characteristics



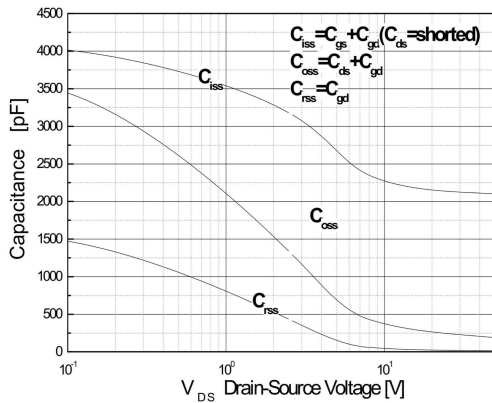
On-Resistance Variation vs. Drain Current and Gate Voltage



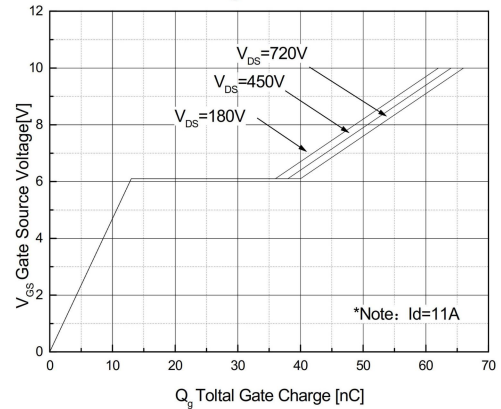
Body Diode Forward Voltage Variation vs. Source Current and Temperature



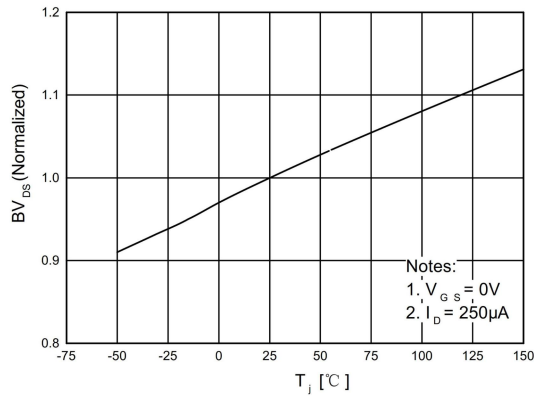
Capacitance Characteristics



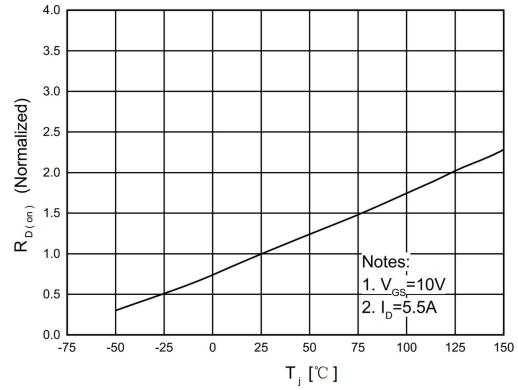
Gate Charge Characteristics



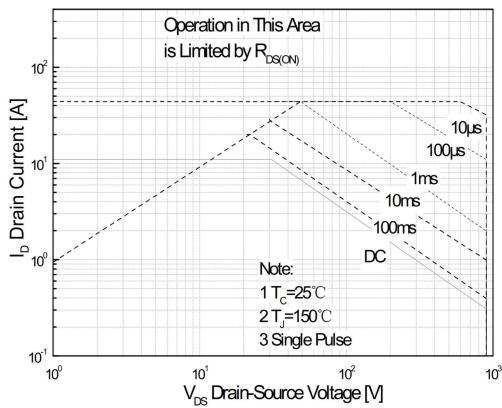
Breakdown Voltage Variation vs. Temperature



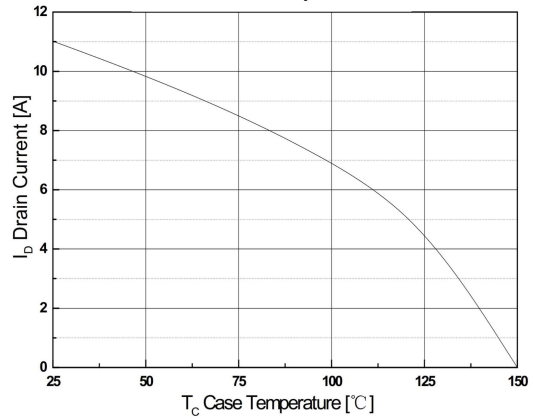
On-Resistance Variation vs. Temperature



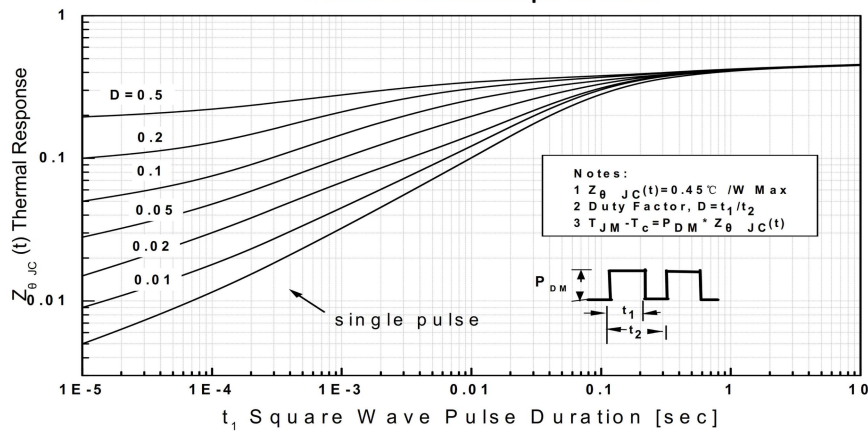
Maximum Safe Operating Area



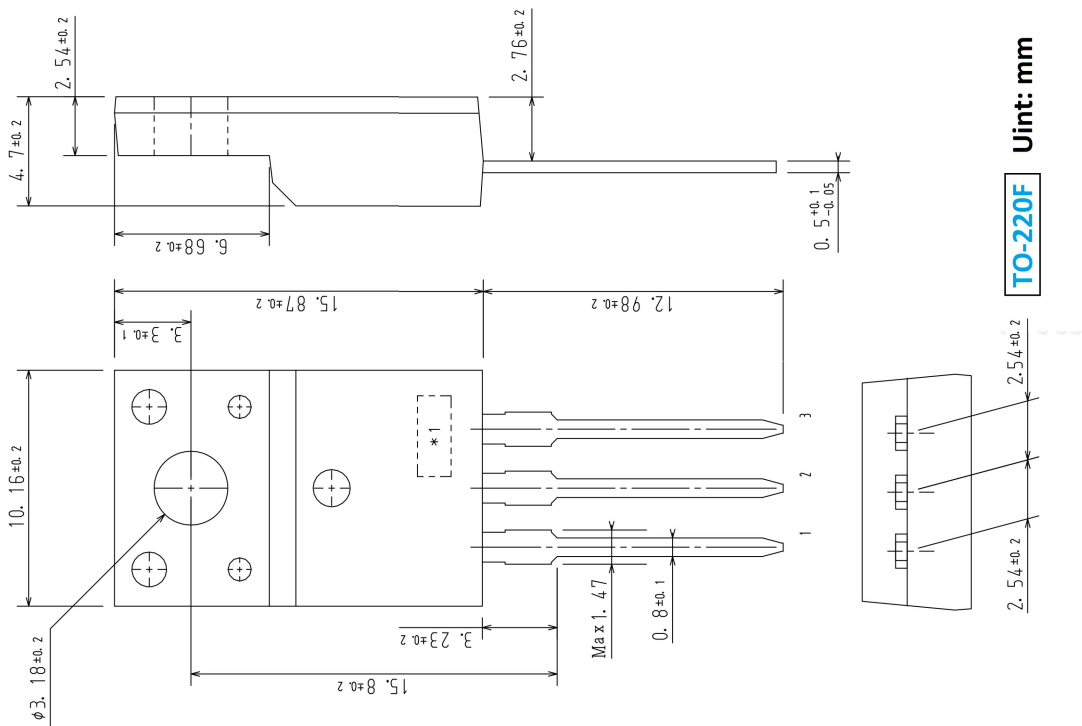
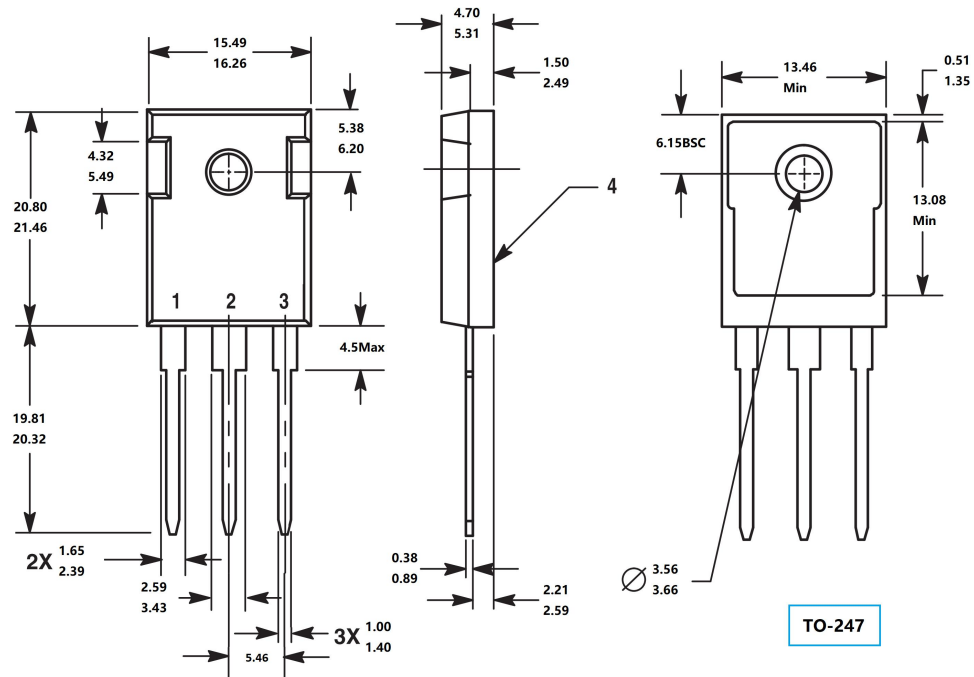
Maximum Drain Current vs. Case Temperature



Transient Thermal Response Curve



Package Mechanical Data



Unit: mm