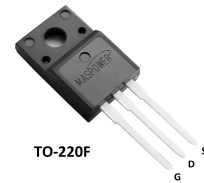
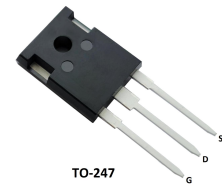
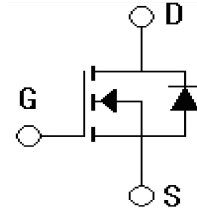


## Features

- $V_{DS}=1200V, I_D=10A$   
 $R_{DS(on)} < 2\Omega @ V_{GS}=10V$
- High density cell design for ultra low  $R_{dson}$
- Low gate charge
- Improved  $dv/dt$  capability
- RoHS product

## Applications

- High Voltage Switched-mode and resonant-mode power supplies
- High Voltage Pulse Power Applications
- High Voltage Discharge circuits in Lasers Pulsers, Spark Igniters, RF Generators
- High Voltage DC-DC converters
- High Voltage DC-AC inverters



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

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	$V_{DSS}$	1200	V
Gate-Source Voltage	$V_{GSS}$	$\pm 30$	V
Drain Current-continuous	$I_D$	10	A
Drain Current-pulse(note1)	$I_{DM}$	15	A
Single Pulsed Avalanche Energy (note2)	$E_{AS}$	30	mJ
Maximum Power Dissipation (TO-247)	PD	430	W
Maximum Power Dissipation (TO-263)	PD	277	
Maximum Power Dissipation (TO-220F)	PD	67.9	
Operating and Storage Temperature Range	$T_J, T_{STG}$	$-55 \sim +175$	$^\circ C$
Maximum lead temperature for soldering purposes	TL	300	$^\circ C$

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

Parameter	Symbol	Tests conditions	Min	Typ	Max	Units
Drain-Source Voltage	$BV_{DSS}$	$I_D=250\mu A, V_{GS}=0V$	1200	-	-	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=V_{DSS}, V_{GS}=0V$	-	-	1	$\mu A$
Gate-Body Leakage Current	$I_{GSS}$	$V_{GS}=\pm 30V, V_{DS}=0V$	-	-	$\pm 100$	nA
<b>On-Characteristics</b>						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2.5	-	5.5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=1A$	-	2	-	$\Omega$
Forward Transconductance	$g_{fs}$	$V_{DS}=20V, I_D=5A$ (note3)	-	13	-	S
<b>Dynamic Characteristics</b>						
Input capacitance	$C_{iss}$	$V_{DS}=25V, V_{GS}=0V,$ $f=1.0MHz$	-	1871	-	pF
Output capacitance	$C_{oss}$		-	153	-	pF
Reverse transfer capacitance	$C_{rss}$		-	9	-	pF

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

Parameter	Symbol	Tests conditions	Min	Typ	Max	Units
<b>Switching-Characteristics</b>						
Turn-On delay time	$t_{d(on)}$	$V_{DS}=600V, I_D=5A,$ $V_{GS}=10V$ (note3,4)	-	25	-	ns
Turn-On rise time	$t_r$		-	33	-	ns
Turn-Off delay time	$t_{d(Off)}$		-	150	-	ns
Turn-Off rise time	$t_f$		-	50	-	ns
Total Gate Charge	$Q_g$	$V_{DS}=600V, I_D=5A,$ $V_{GS}=10V$ (note3,4)	-	41	-	nC
Gate-Source charge	$Q_{gs}$		-	11	-	nC
Gate-Drain charge	$Q_{gd}$		-	13	-	nC
<b>Drain-Source Diode Characteristics and Maximum Ratings</b>						
Maximum Continuous Drain-Source Diode Forward Current	$I_{SD}$	$V_{GS}=0V, I_S=10A$	-	-	1.2	V
Diode Forward Current	$I_S$	$TC=25^\circ C$	-	-	10	A
Reverse recovery time	$T_{rr}$	$I_S=5A, di/dT=100A/\mu S$	-	530	-	nS

Reverse recovery charge	Q <sub>rr</sub>	VR=100V, VGS=0V (note4)	-	3.53	-	μC
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### Thermal Characteristic

Parameter	Symbol	Value			Unit
		TO-263	TO-247	TO-220F	
Thermal Resistance, junction to Case	R <sub>th(j-C)</sub>	0.45	0.35	1.84	°C /W
Thermal Resistance, junction to Ambient	R <sub>th(j-A)</sub>	40	36	62.5	°C /W

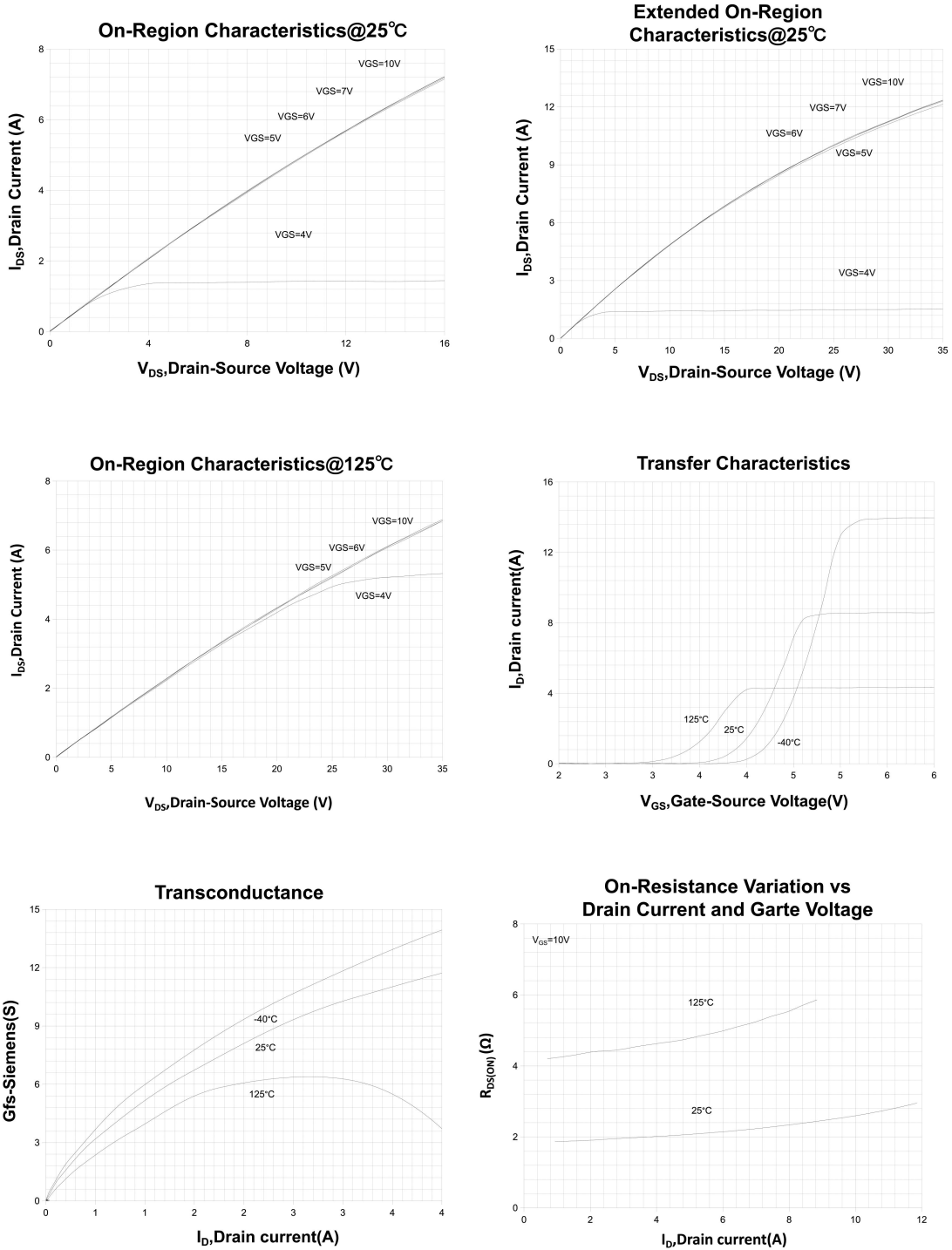
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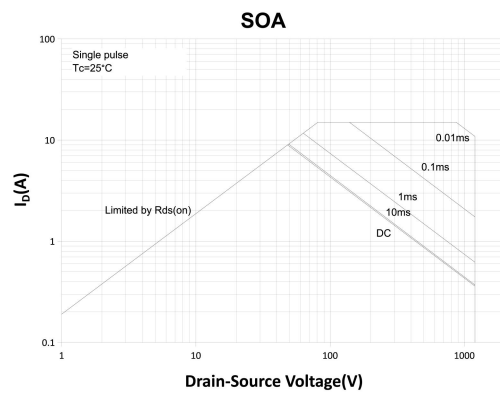
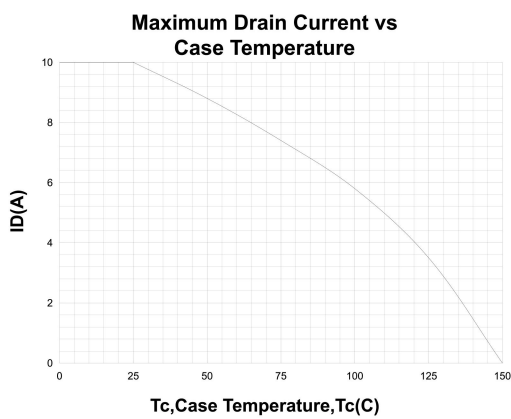
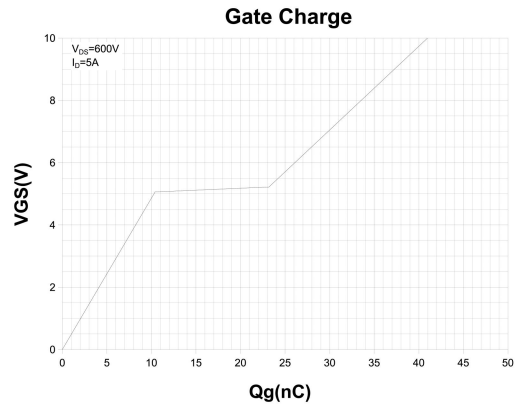
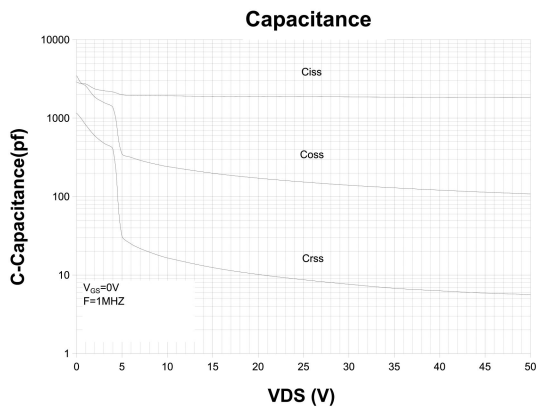
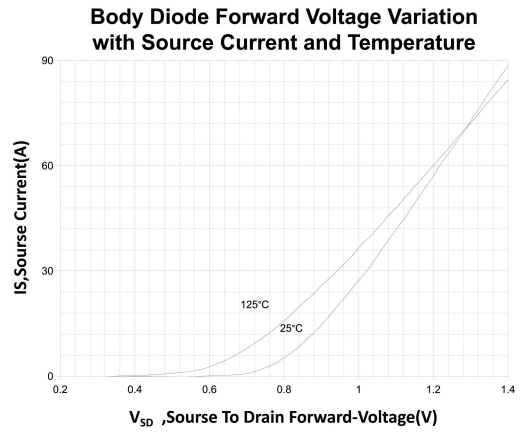
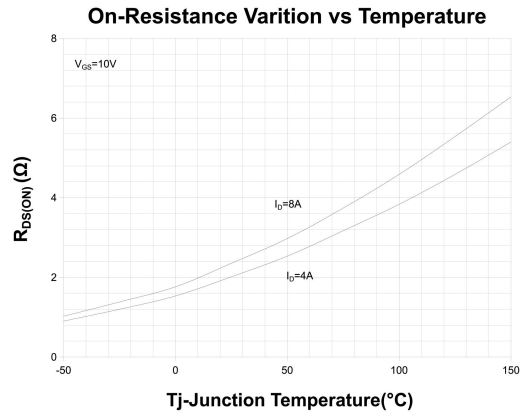
1. Repetitive Rating : Pulse width limited by maximum junction temperature
2. L = 15 mH, I<sub>AS</sub> = 2 A, V<sub>DD</sub> = 50V, R<sub>G</sub> = 25 Ω, Starting T<sub>J</sub> = 25°C
3. Pulse Test : Pulse width ≤ 300us, Duty cycle ≤ 2%
4. Essentially independent of operating temperature

### Order information

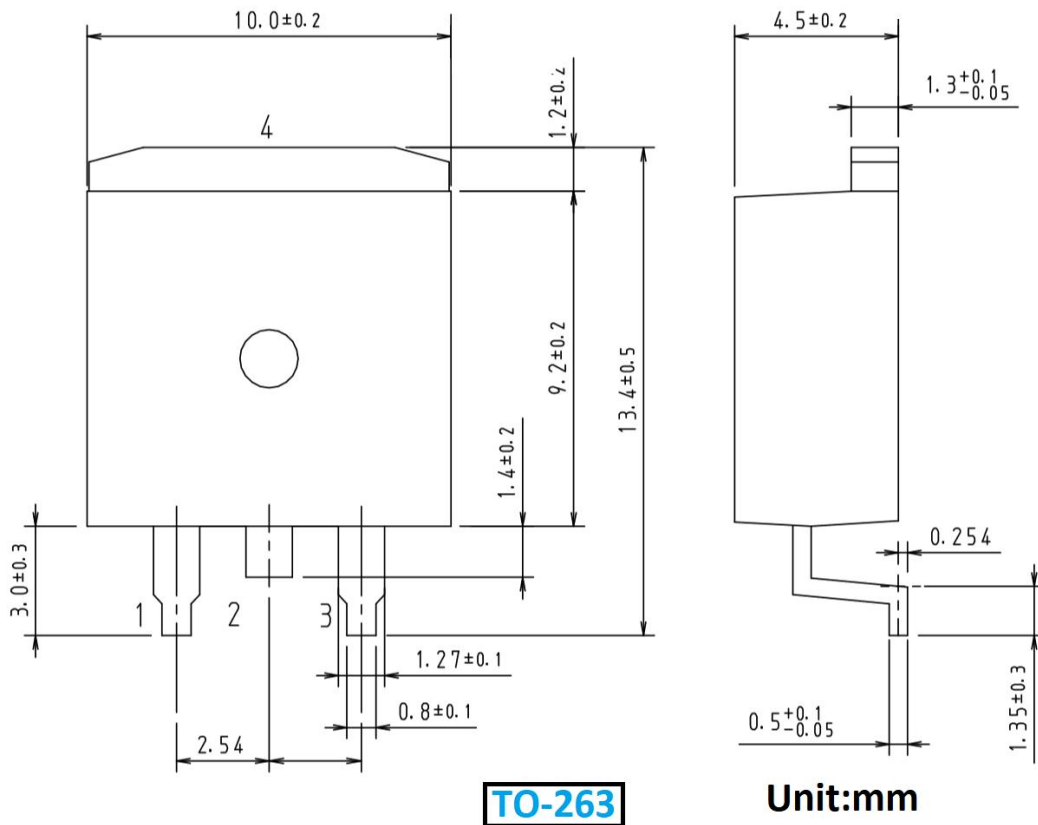
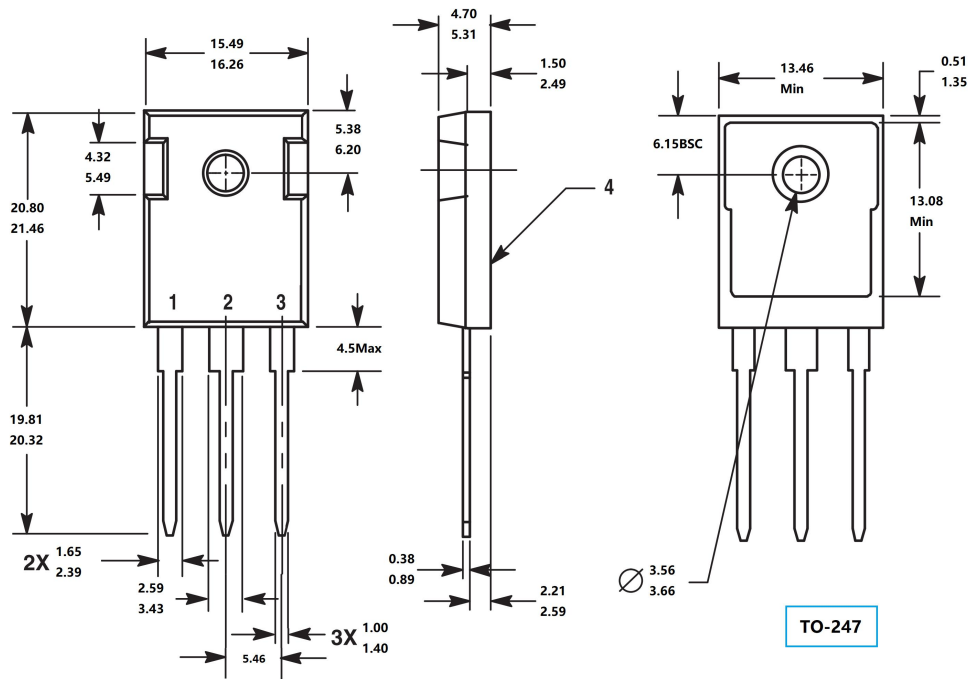
Order codes	Package	Packaging
MS10N120HGC0	TO-247	Tube
MS10N120HGT1	TO-220F	Tube
MS10N120HGE0	TO-263	Tube

## Electrical Characteristics









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