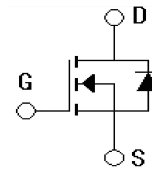
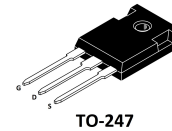
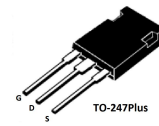


Features

- $V_{DS}=1000V, I_D=30A$
 $R_{DS(on)} < 0.38\Omega$
- avalanche tested and current rated
- Fast intrinsic Rectifier



Applications

- High power density
- Easy to mount
- Space savings

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

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DSS}	1000	V
Gate-Source Voltage	V_{GSS}	± 30	V
Drain Current-continuous	I_D	30	A
Drain Current-pulse (1)	I_{DM}	55	A
Single Pulsed Avalanche Energy (2)	E_{AS}	750	mJ
Maximum Power Dissipation (TO-247plus)	PD	735	W
Maximum Power Dissipation (TO-247)	PD	290	W
Operating Temperature Range	T_J	$-40 \sim +150$	$^\circ\text{C}$
Storage Temperature Rang	TSTG	$-55 \sim +150$	$^\circ\text{C}$
Maximum lead temperature for soldering purposes	TL	300	$^\circ\text{C}$

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

Parameter	Symbol	Tests conditions	Min	Typ	Max	Units
Drain-Source Voltage	BV_{DSS}	$I_D=3mA, V_{GS}=0V$	1000	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=V_{DSS}, V_{GS}=0V$	-	-	1	μA

Gate-Body Leakage Current	I_{GSS}	$V_{GS} = \pm 30V, V_{DS} = 0V$	-	-	± 100	nA
On-Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 2.5mA$	3.0	-	5.5	V
Static Drain-Source On-Resistance (3)	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 15A$	-	0.28	0.38	Ω
Forward Transconductance	g_{fs}	$V_{DS} = 10V, I_D = 15A$ (note3)	-	31	-	S
Dynamic Characteristics						
Input capacitance	C_{iss}	$V_{DS} = 25V, V_{GS} = 0V,$ $f = 1.0MHz$	-	4690	-	pF
Output capacitance	C_{oss}		-	421	-	pF
Reverse transfer capacitance	C_{rss}		-	15	-	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, R _g =25Ω (note3,4)	-	76	-	ns
Turn-On rise time	t _r		-	52	-	ns
Turn-Off delay time	t _{d(Off)}		-	338	-	ns
Turn-Off rise time	t _f		-	76	-	ns
Total Gate Charge	Q _g	V _{DS} =750V,I _D =4A, V _{GS} =10V (note3,4)	-	96	-	nC
Gate-Source charge	Q _{gs}		-	26	-	nC
Gate-Drain charge	Q _{gd}		-	31	-	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	TC=25℃	-	-	30	A
Reverse recovery time	T _{rr}	I _S =4A, dI/dT=100A/μS	-	0.4		uS
Reverse Recovery Charge	Q _{rr}	VR=1000V,V _{GS} =0V		3.9		uC

Thermal Characteristic(TO-247plus)

Parameter	Symbol	Unit	
Thermal Resistance, junction to Case	$R_{th(j-C)}$	0.15	°C/W
Case to Sink Thermal Resistance, Flat, Greased Surface	$R_{th(C-S)}$	0.11	

Thermal Characteristic(TO-247)

Parameter	Symbol	Unit	
Thermal Resistance, junction to Case	$R_{th(j-C)}$	0.43	°C/W
Case to Sink Thermal Resistance, junction-Ambient	$R_{th(C-A)}$	40	

Order Message

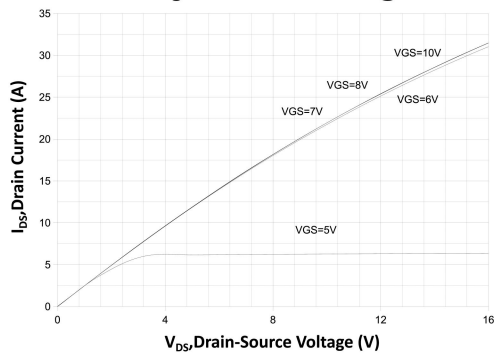
Marking	Package
MS30N100HGC1	TO-247plus
MS30N100HGC0	TO-247

Notes:

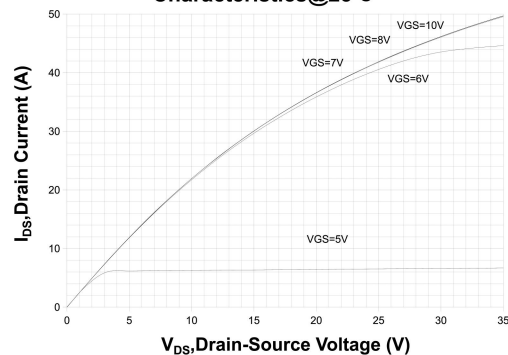
1. Repetitive Rating : Pulse width limited by maximum junction temperature
2. $L = 15 \text{ mH}$, $I_{AS} = 10 \text{ A}$, $V_{DD} = 50 \text{ V}$, $R_G = 25 \text{ } \Omega$, Starting $T_J = 25^\circ \text{C}$
3. Pulse Test : Pulse width $\leq 300 \mu\text{s}$, Duty cycle $\leq 2\%$
4. Essentially independent of operating temperature

Electrical Characteristics

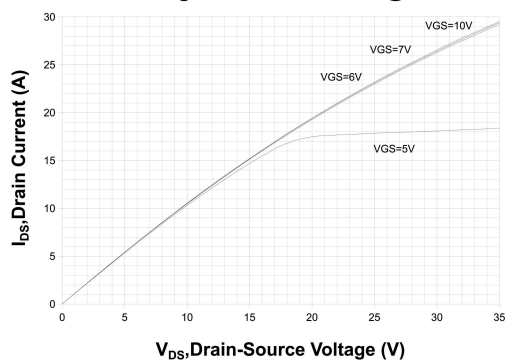
On-Region Characteristics@25°C



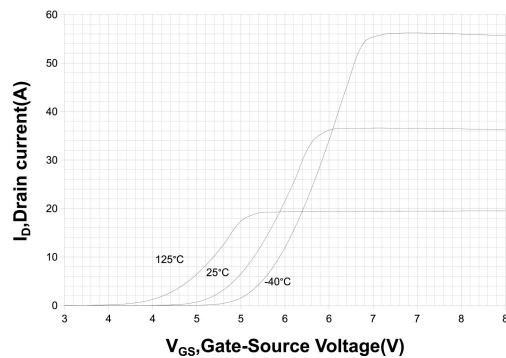
Extended On-Region Characteristics@25°C



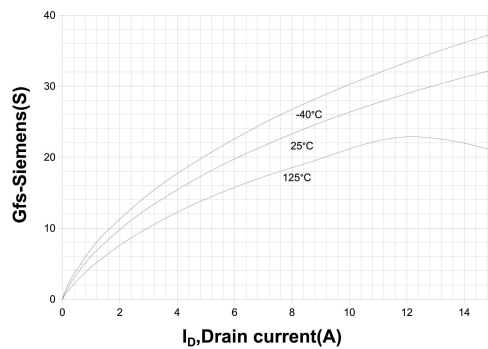
On-Region Characteristics@125°C



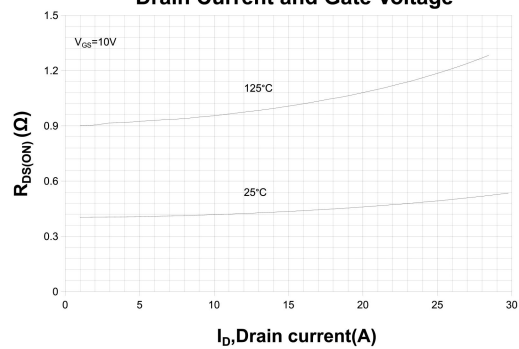
Transfer Characteristics

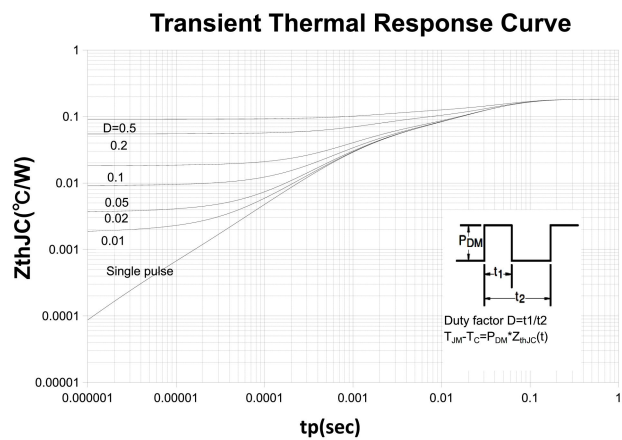
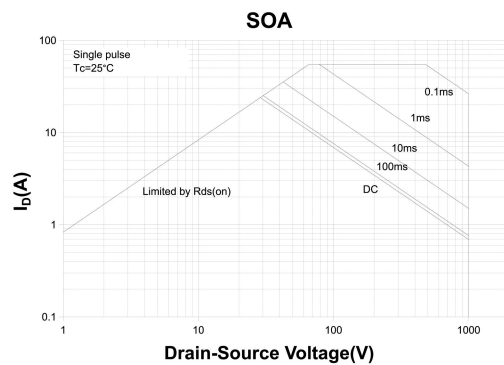
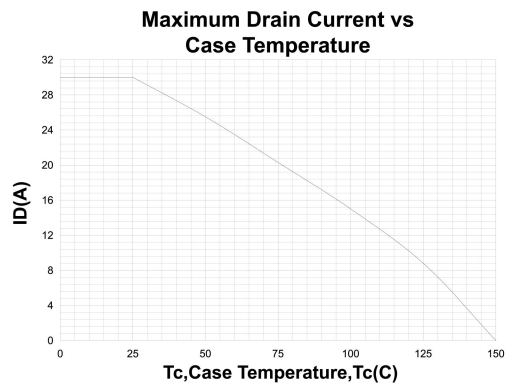
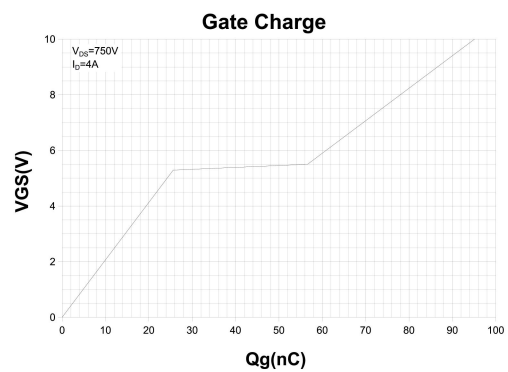
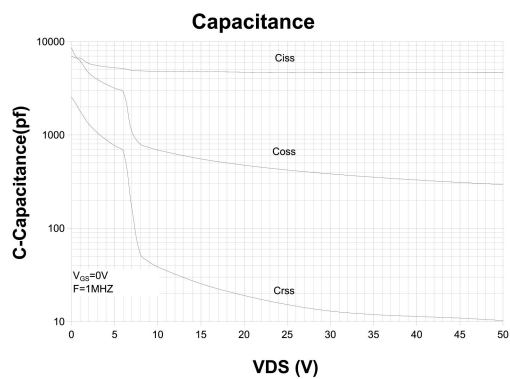
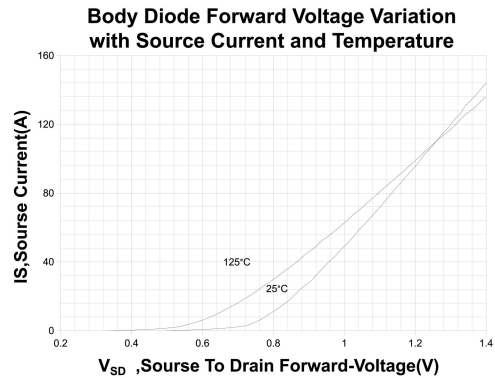
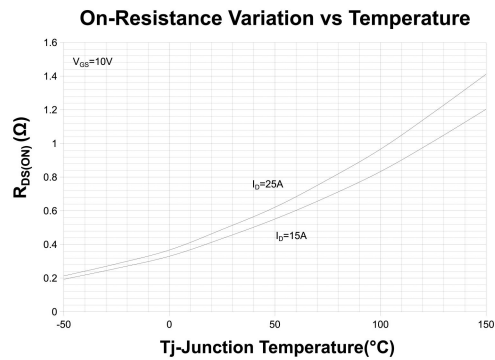


Transconductance



On-Resistance Variation vs Drain Current and Gate Voltage





Package Mechanical DATA

