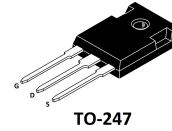
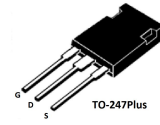


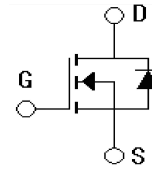
## Features

- $V_{DS}=1000V, I_D=30A$   
 $R_{DS(on)} < 0.38\Omega$
- 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	$V_{GSS}$	$\pm 30$	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 and Storage Temperature Range	$T_J, T_{STG}$	-55~+175	$^\circ\text{C}$
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	$\mu\text{A}$
Gate-Body Leakage Current	$I_{GSS}$	$V_{GS}=\pm 30V, V_{DS}=0V$	-	-	$\pm 100$	nA

<b>On-Characteristics</b>						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=2.5mA$	3.0	-	5.5	V
Static Drain-Source On-Resistance (3)	$R_{DS(ON)}$	$V_{GS}=10V, I_D=15A$	-	0.28	0.38	$\Omega$
Forward Transconductance	$g_{fs}$	$V_{DS}=10V, I_D=15A$ (note3)	-	31	-	S
<b>Dynamic Characteristics</b>						
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
<b>Switching-Characteristics</b>						
Turn-On delay time	$t_{d(on)}$	$V_{DS}=750V, I_D=4A,$ $R_g=25\Omega$ (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
<b>Drain-Source Diode Characteristics and Maximum Ratings</b>						
Maximum Continuous Drain-Source Diode Forward Current	$V_{SD}$	$V_{GS}=0V, I_S=15A$	-	-	1.2	V
Diode Forward Current	$I_S$	$TC=25^{\circ}C$	-	-	30	A
Reverse recovery time	$T_{rr}$	$I_S=4A,$ $dI/dT=100A/\mu S$	-	0.4		$\mu S$
Reverse Recovery Charge	$Q_{rr}$	$V_R=1000V, V_{GS}=0V$		3.9		$\mu C$

## 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	

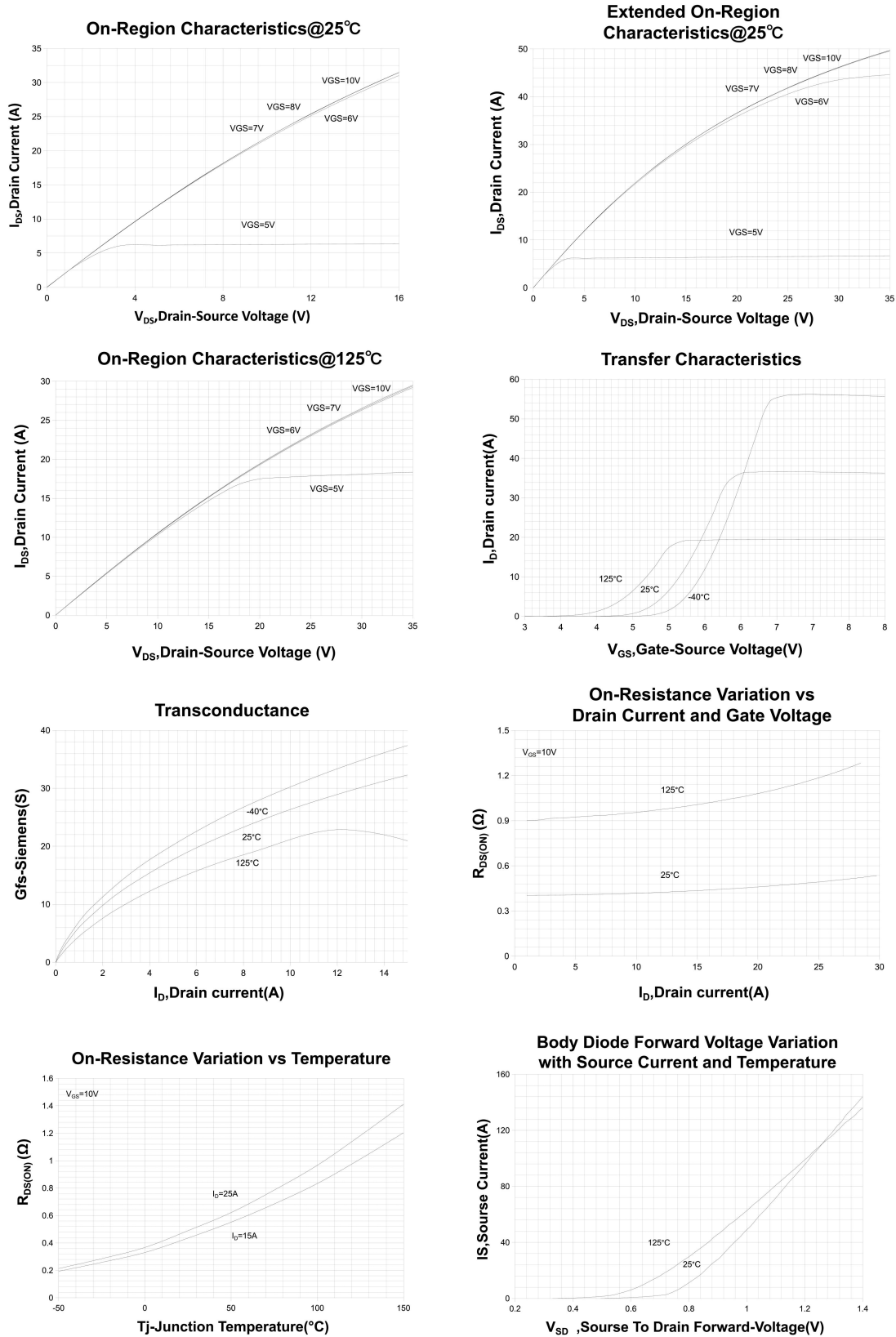
## Order Message

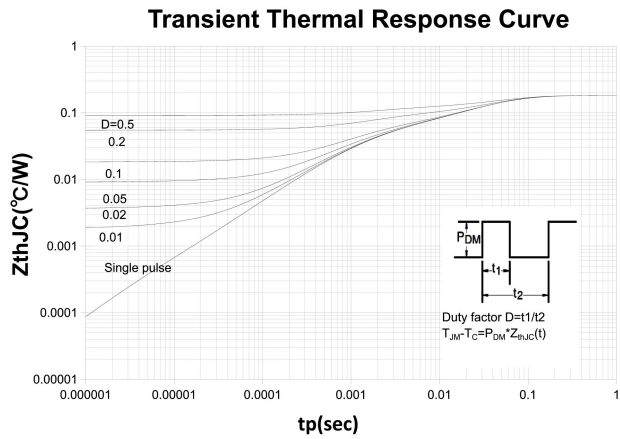
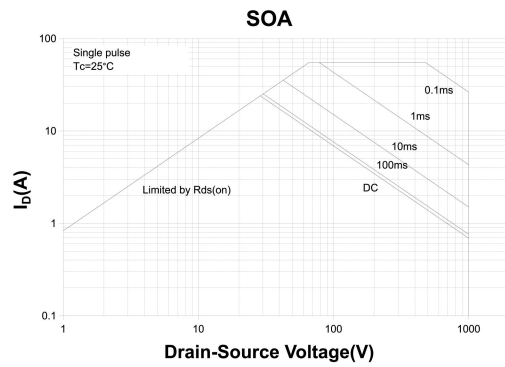
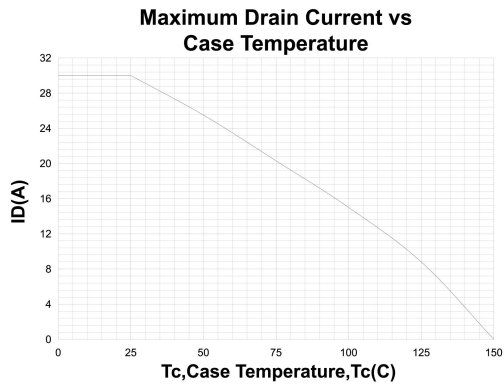
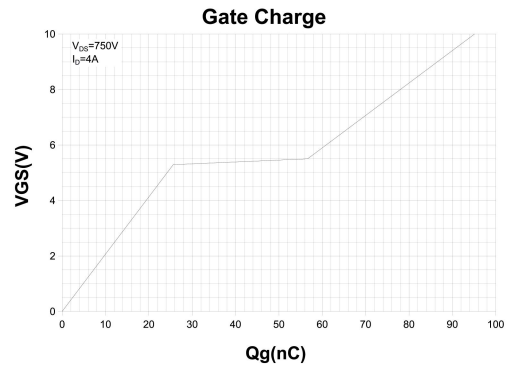
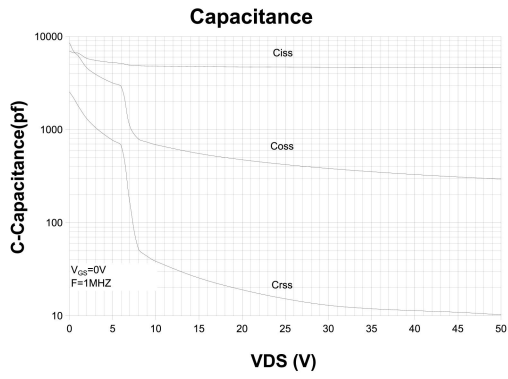
Marking	Package
MS30N100HGC1	TO-247plus
MS30N100HGC0	TO-247

### Notes:

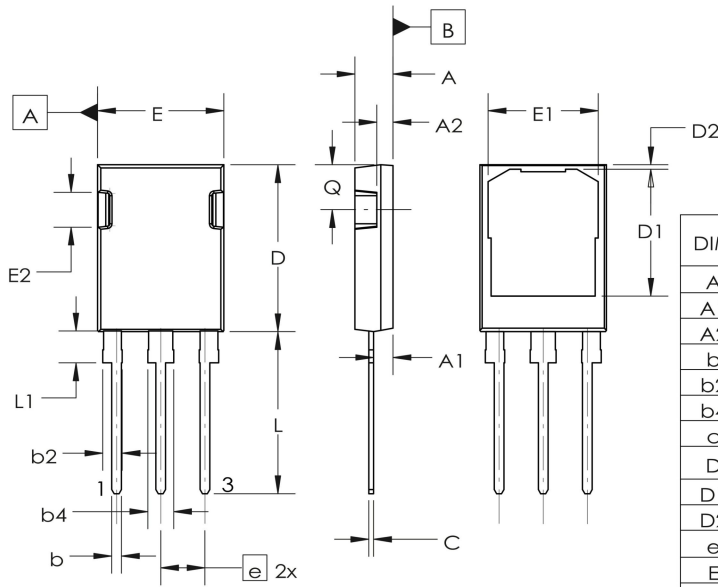
1. Repetitive Rating : Pulse width limited by maximum junction temperature
2. L = 15 mH, IAS = 10 A, VDD = 50V, RG = 25 Ω, Starting TJ = 25°C
3. Pulse Test : Pulse width ≤ 300us, Duty cycle ≤ 2%
4. Essentially independent of operating temperature

## Electrical Characteristics





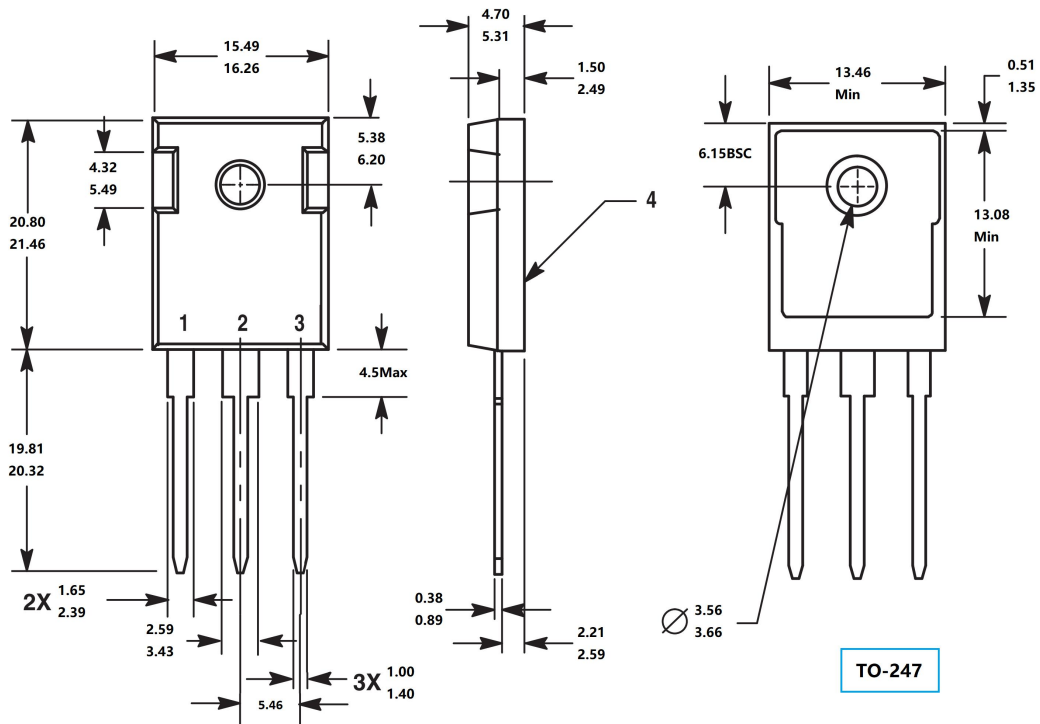
## Package Mechanical DATA



DIM	MILLIMETERS		
	MIN	NOM	MAX
A	4.60	4.70	4.80
A1	2.10	2.40	2.70
A2	1.70	2.00	2.30
b	1.16	1.20	1.26
b2	2.20	2.40	2.60
b4	3.00	3.20	3.40
c	0.59	0.60	0.66
D	20.40	20.60	20.80
D1	15.47	15.67	15.87
D2	0.25	0.55	0.85
e	5.45 BSC		
E	15.40	15.60	15.80
E1	13.40	13.60	13.80
E2	4.12	4.30	4.52
L	19.70	20.00	20.30
L1	3.65	3.85	4.05
Q	5.35	5.55	5.75

**TO-247plus**

Unit:mm



**TO-247**