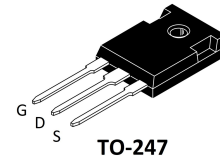
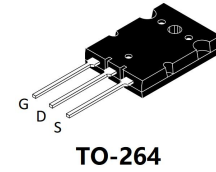


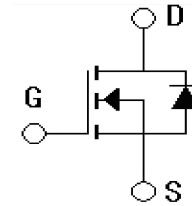
## Features

- $V_{DS}=300V, I_D=140A$   
 $R_{DS(on)} < 35m\Omega @ V_{GS}=10V$
- High density cell design for ultra low  $R_{dson}$
- Low gate charge
- Improved  $dv/dt$  capability
- RoHS product



## Applications

- Power switching application
- Isolated DC/DC converters in Telecom and Industrial
- Synchronous Rectification in DC/DC Converters



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

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	$V_{DSS}$	300	V
Gate-Source Voltage	$V_{GSS}$	$\pm 20$	V
Drain Current-continuous	$I_D$	140	A
Drain Current-pulse	$I_{DM}$	300	A
Single Pulsed Avalanche Energy	$E_{AS}$	5	J
Maximum Power Dissipation (TO-264)	PD TC=25°C	1040	W
Maximum Power Dissipation (TO-247)	Derate above 25°C	375	W
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55~+150	°C

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

Parameter	Symbol	Tests conditions	Min	Typ	Max	Units
Drain-Source Voltage	$BV_{DSS}$	$I_D=3mA, V_{GS}=0V$	300	-	-	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=V_{DSS}, V_{GS}=0V$	-	-	25	$\mu A$
Gate-Body Leakage Current	$I_{GSS}$	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	$\pm 200$	nA

## On-Characteristics

Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=8mA$	3.0		5.0	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=70A$	-	32	35	m $\Omega$
Forward Transconductance	$g_{fs}$	$V_{DS}=20V, I_D=70A$	50	90	-	S
<b>Dynamic Characteristics</b>						
Input capacitance	$C_{iss}$	$V_{DS}=25V, V_{GS}=0V, f=1.0MHz$	-	14.8	-	nF
Output capacitance	$C_{oss}$		-	1830	-	pF
Reverse transfer capacitance	$C_{rss}$		-	55	-	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	$t_{d(on)}$	$V_{DS}=150V, I_D=70A, R_G=1\Omega, V_{GS}=10V$	-	30	-	ns
Turn-On rise time	$t_r$		-	30	-	ns
Turn-Off delay time	$t_{d(off)}$		-	100	-	ns
Turn-Off rise time	$t_f$		-	20	-	ns
Total Gate Charge	$Q_g$	$V_{DS}=150V, I_D=70A, V_{GS}=10V$	-	185	-	nC
Gate-Source charge	$Q_{gs}$		-	72	-	nC
Gate-Drain charge	$Q_{gd}$		-	60	-	nC
<b>Drain-Source Diode Characteristics and Maximum Ratings</b>						
Maximum Continuous Drain-Source Diode Forward Current	$I_{SD}$	$V_{GS}=0V, I_S=70A$	-	-	1.3	V
Diode Forward Current	$I_S$	$TC=25^{\circ}C$	-	-	140	A
Reverse recovery time	$T_{rr}$	$I_S=25A, DI/DT=100A/\mu S$	-	-	350	nS
Reverse recovery charge	$Q_{rr}$		-	0.6	-	$\mu C$

**Thermal Characteristic**

Parameter	Symbol	Value		Unit
		TO-264	TO-247	
Thermal Resistance, junction to Case	$R_{th(j-C)}$	0.12	0.4	$^{\circ}C/W$

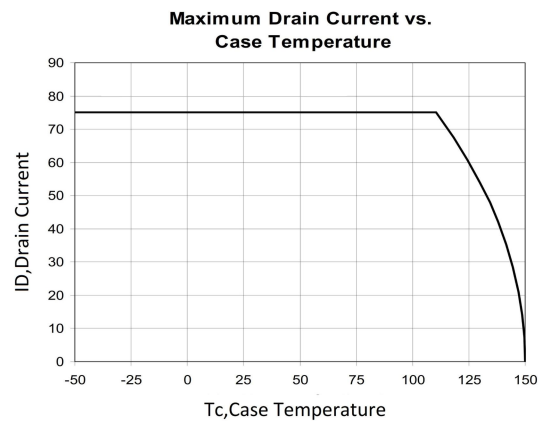
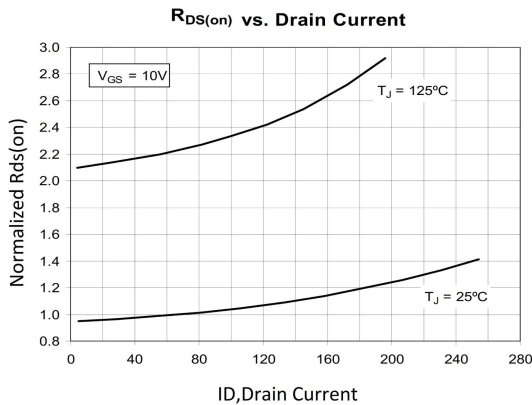
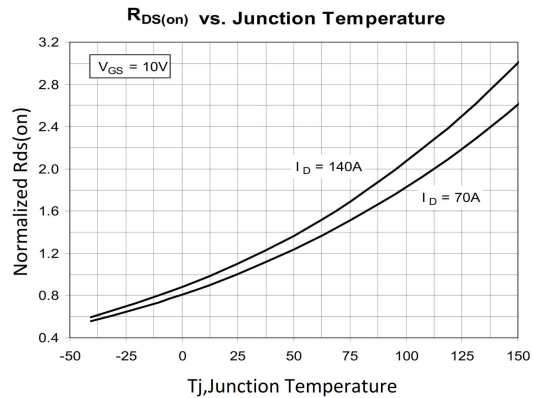
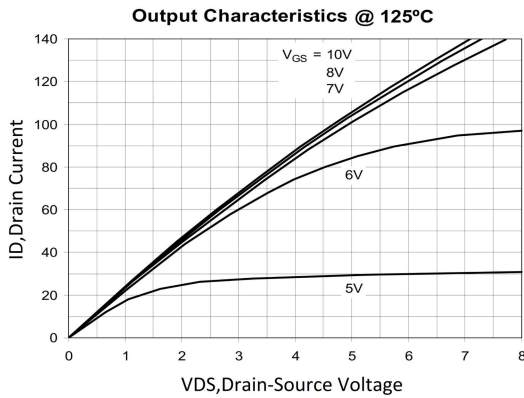
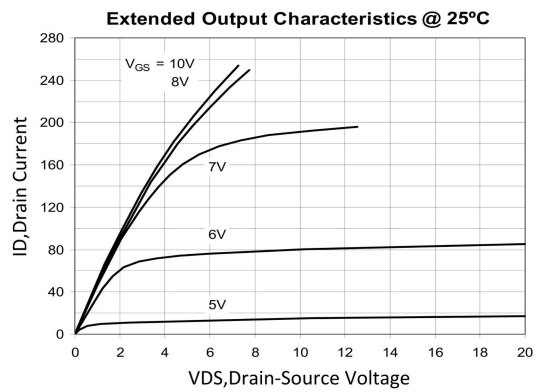
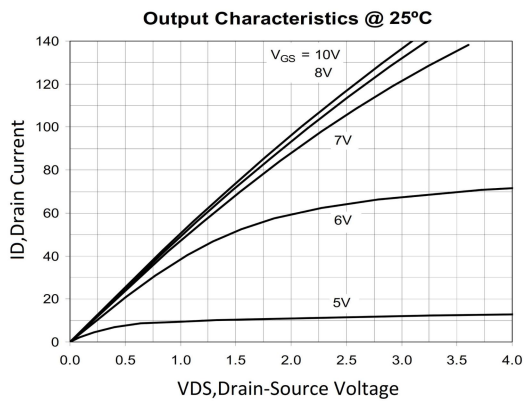
Notes:

1. Pulse Test: Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 2\%$

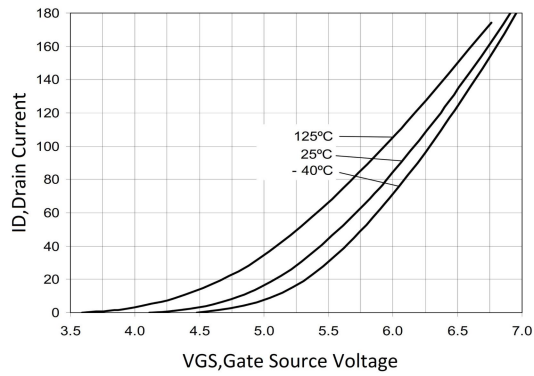
## Order Message

Marking	Package
MS140N30HGB3	TO-264
MS140N30HGCO	TO-247

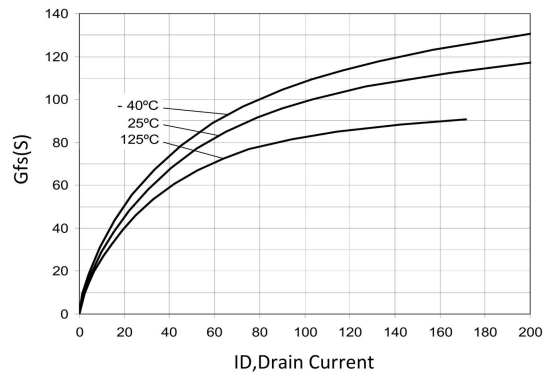
## Electrical Characteristics



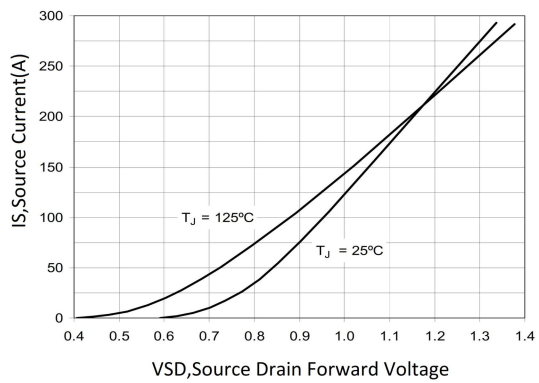
**Transfer Characteristics**



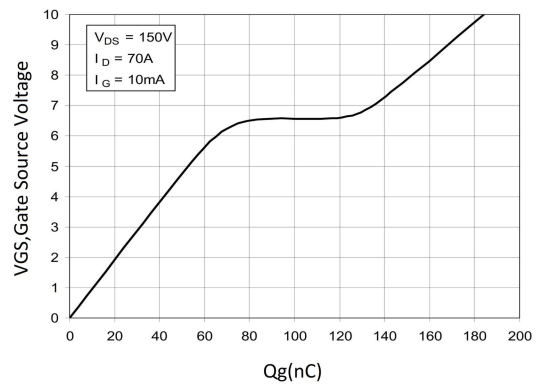
**Transconductance**



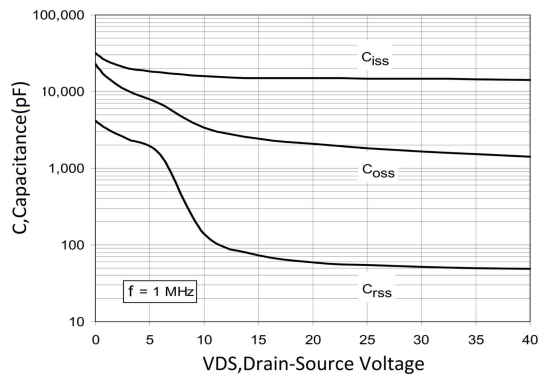
**Forward Voltage Drop of Intrinsic Diode**



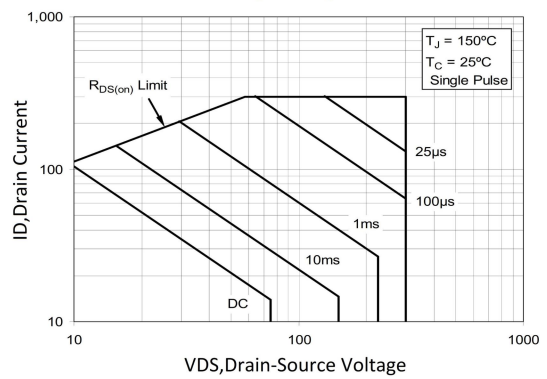
**Gate Charge**



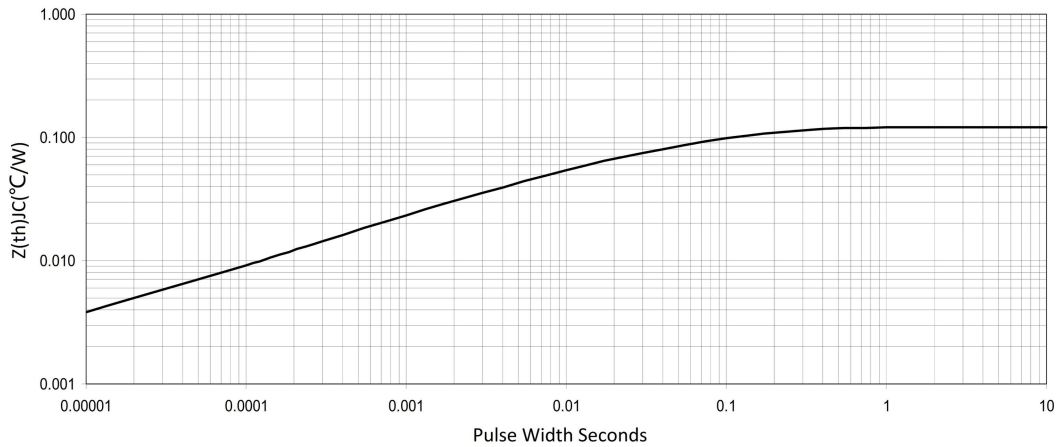
**Capacitance**



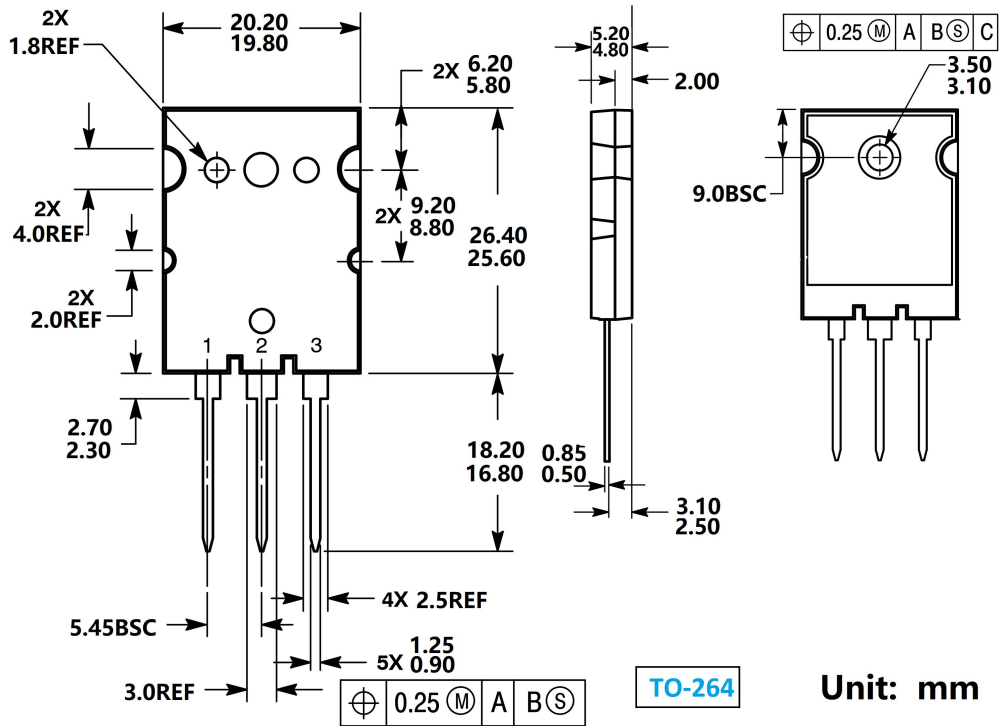
**Safe Operating Area**

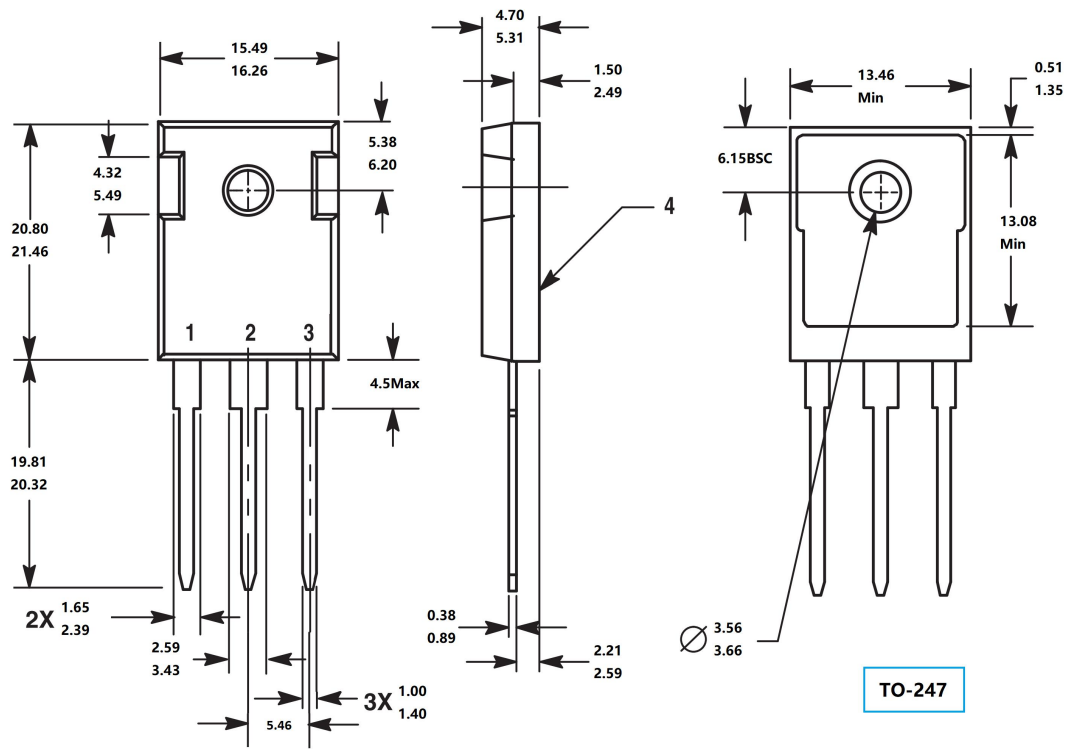


Maximum Transient Thermal Impedance



### Package Mechanical DATA





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