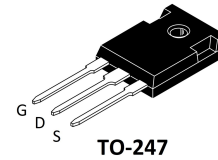
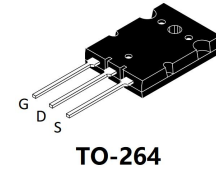


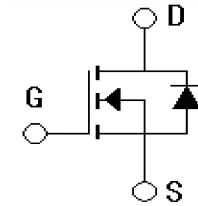
Features

- $V_{DS}=300V, I_D=140A$
 $R_{DS(on)} < 32m\Omega @ V_{GS}=10V$
- High density cell design for ultra low $R_{ds(on)}$
- 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
Transient Gate-Source Voltage	V _{GSM}		±30	V
Continuous Gate-Source Voltage	V _{GSS}		±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	T _C =25℃	1041	W
		T _C =100℃	416	
Maximum Power Dissipation (TO-247)	PD	T _C =25℃	312	W
		T _C =100℃	125	
Operating and Storage Temperature Range	T _J ,T _{STG}		-55~+150	℃

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

Parameter	Symbol	Tests conditions	Min	Typ	Max	Units
Drain-Source Voltage	BV_{DSS}	$I_D=250\mu A, V_{GS}=0V$	300	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=V_{DSS}, V_{GS}=0V$	-	-	25	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 200	nA
On-Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2.4	3.4	4.4	V

Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=30A$ (note1)	-	27	32	mΩ
Forward Transconductance	g_{fs}	$V_{DS}=20V, I_D=70A$	50	90	-	S
Dynamic Characteristics						
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
Switching-Characteristics						
Turn-On delay time	t _{d(on)}	V _{DS} =150V,I _D =70A, R _G =1Ω 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
Drain-Source Diode Characteristics and Maximum Ratings						
Maximum Continuous Drain-Source Diode Forward Current	V _{SD}	V _{GS} =0V,I _S =30A (note 1)	-	0.84	1.2	V
Diode Forward Current	I _S	T _C =25℃	-	-	140	A
Reverse recovery time	t _{rr}	I _S =25A, dI _S /dt=100A/μs	-	-	350	ns
Reverse recovery charge	Q _{rr}		-	0.6	-	μC

Thermal Characteristic

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

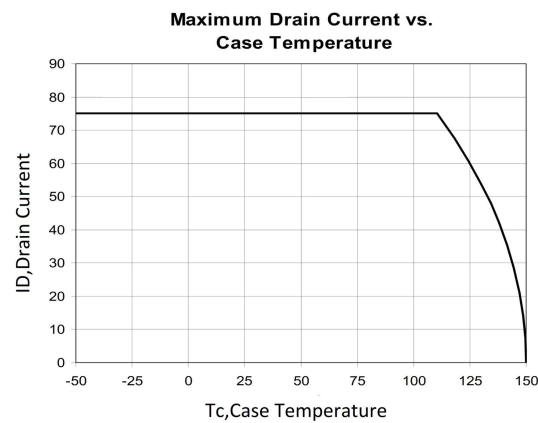
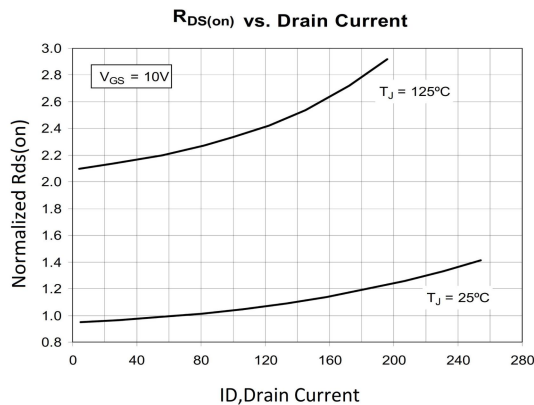
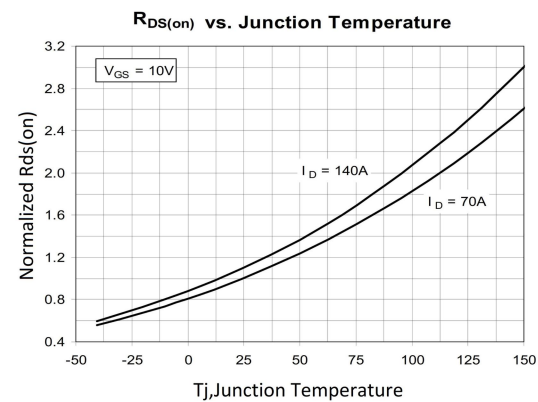
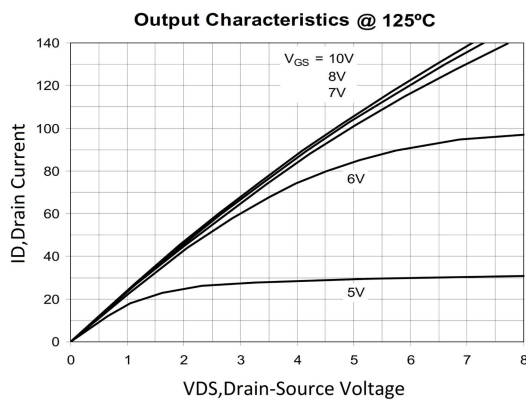
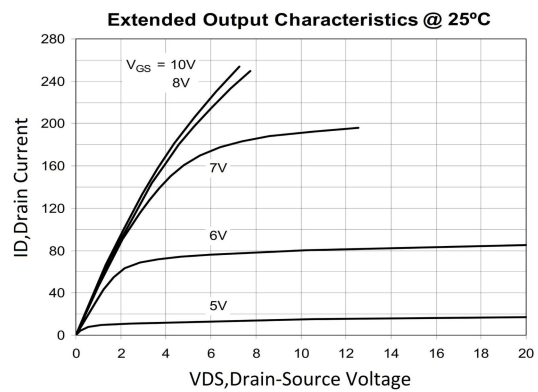
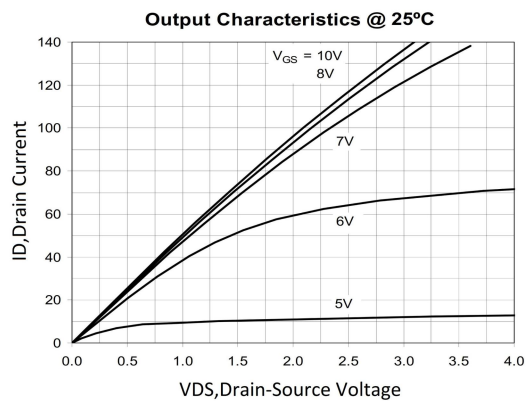
Notes:

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

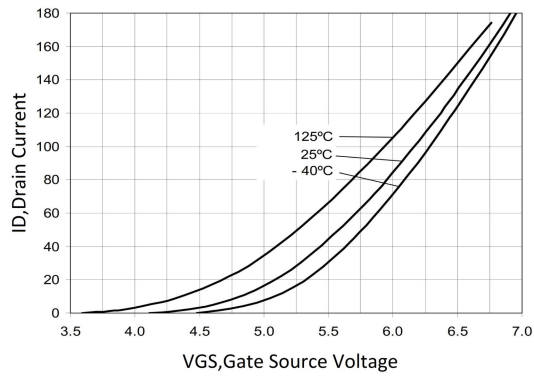
Order Message

Marking	Package
MS140N30HGB3	TO-264
MS140N30HGC0	TO-247

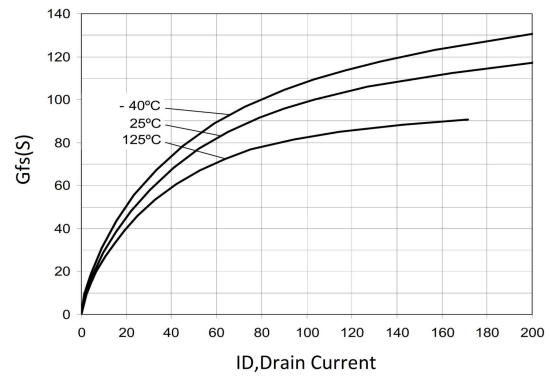
Electrical Characteristics



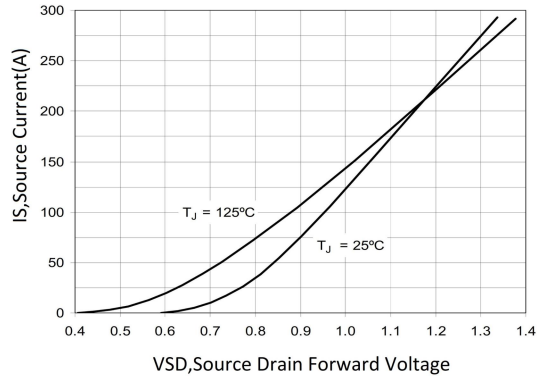
Transfer Characteristics



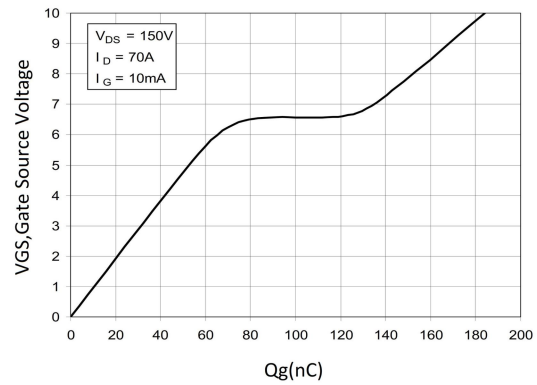
Transconductance



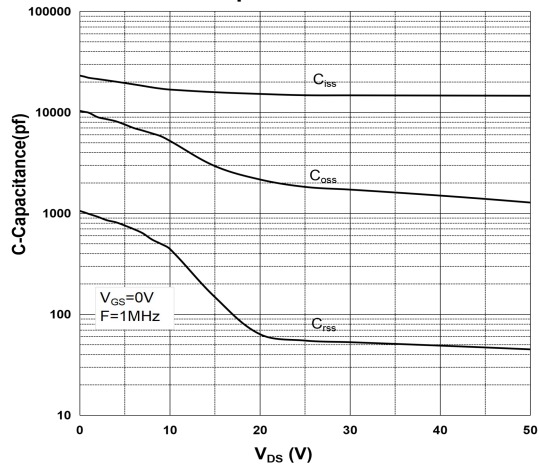
Forward Voltage Drop of Intrinsic Diode



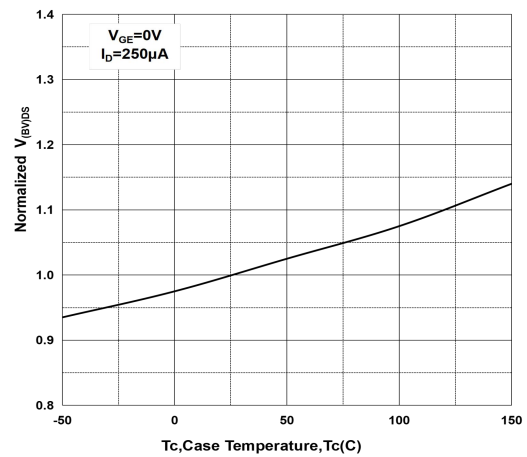
Gate Charge



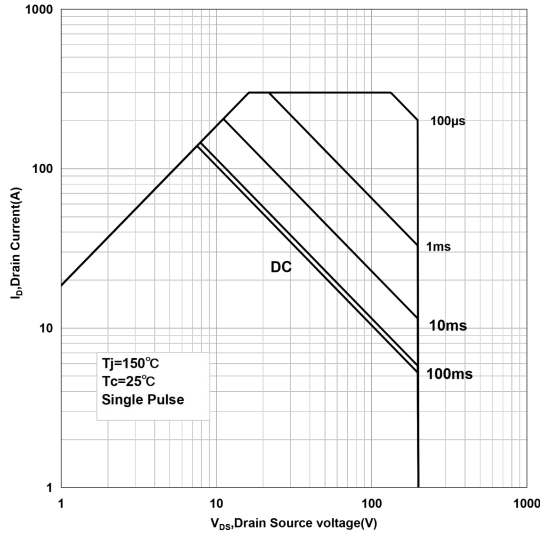
Capacitance



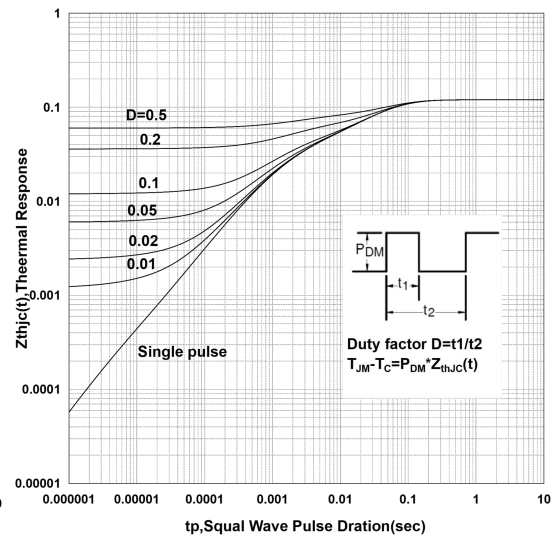
Normalized $V_{(BV)DS}$ vs temperature



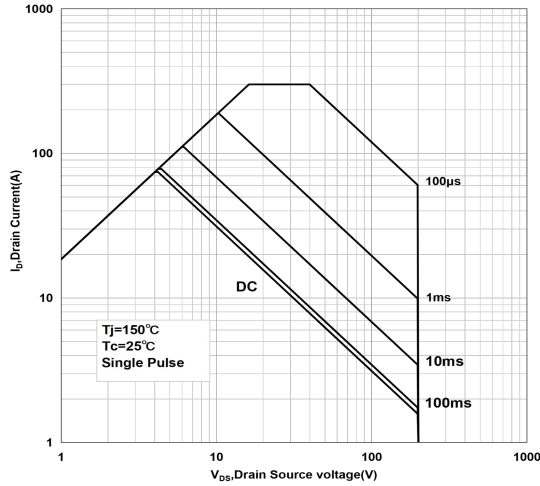
Safe Operating Area for TO-264



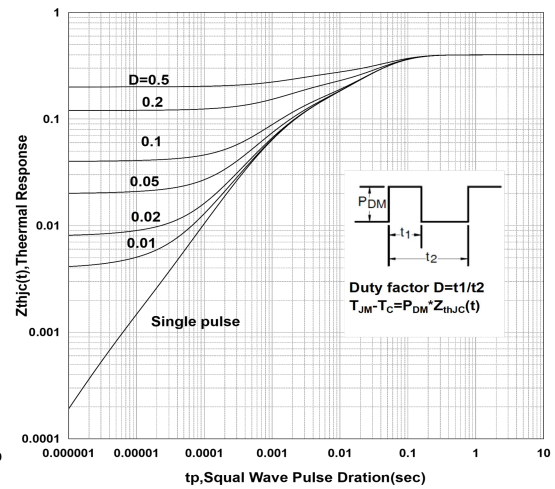
Transient response Curve for TO-264



Safe Operating Area for TO-247



Transient response Curve for TO-247



Package Mechanical DATA

