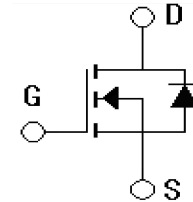
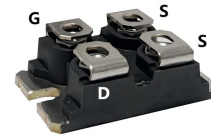


Features

- $V_{DS}=300V, I_D=150A$
 $R_{DS(on), Type}=33m\Omega @ V_{GS}=10V$
- 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
Transient Gate-Source Voltage	V _{GSM}		±30	V
Continuous Gate-Source Voltage	V _{GSS}		±20	V
Drain Current-continuous	I _D		150	A
Drain Current-pulse(note 1)	I _{DM}		300	A
Single Pulsed Avalanche Energy(note 2)	E _{AS}		5	J
Reverse Diode Voltage Change Ratio(note 3)	dv/dt		6.4	V/s
Maximum Power Dissipation	P _D	T _C =25℃	403	W
		T _C =100℃	161	
Operating and Storage Temperature Range	T _J ,T _{STG}		-55~+150	℃
Maximum lead temperature for soldering plastic body for 10s	T _L		300	℃

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	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 200	nA

Current						
On-Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2.0	3.0	4.0	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=30A$ (note4)	-	33	4.5	m Ω
Forward Transconductance	g_{fs}	$V_{DS}=20V, I_D=30A$ (note4)	50	75	-	S
Dynamic Characteristics						
Input capacitance	C_{iss}	$V_{DS}=25V, V_{GS}=0V,$ $f=1.0MHz$	-	14.6	-	nF
Output capacitance	C_{oss}		-	1810	-	pF
Reverse transfer capacitance	C_{rss}		-	45	-	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 =75A, 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 =75A, 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						
Drain-Source Diode Forward Voltage	V _{SD}	V _{GS} =0V,I _S =10A (note 4)	-	0.76	-	V
Diode Forward Current	I _S	T _C =25℃	-	-	150	A
Reverse recovery time	t _{rr}	I _S =25A, dI _S /dt=100A/μs	-	-	320	ns
Reverse recovery charge	Q _{rr}		-	0.5	-	μC
Reverse recovery Current	I _{rr}		-	32	-	A

Thermal Characteristic

Parameter	Symbol	Value	Unit
Thermal Resistance, junction to Case	$R_{th(j-C)}$	0.31	$^{\circ}C/W$

Notes:

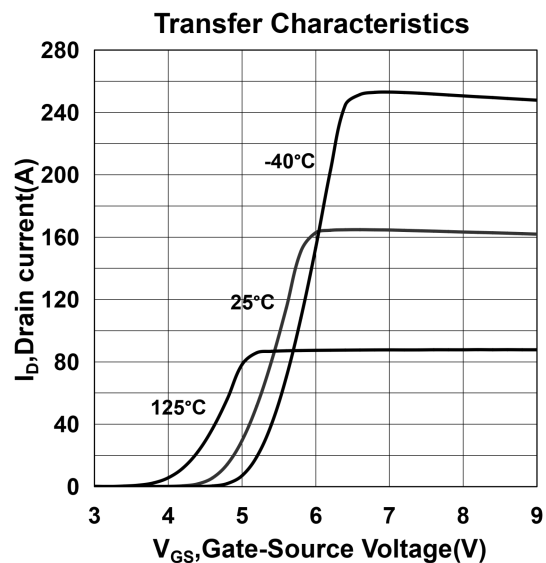
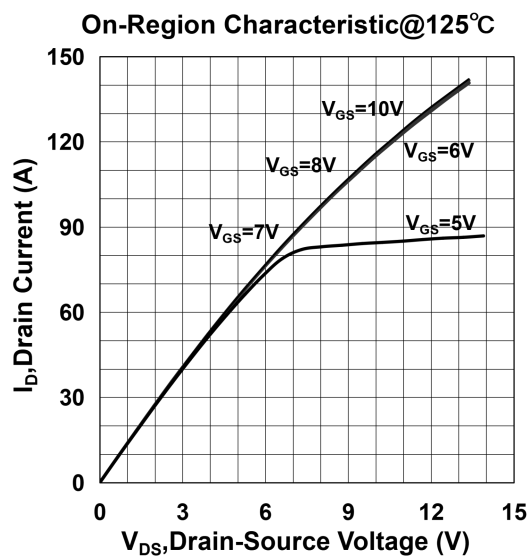
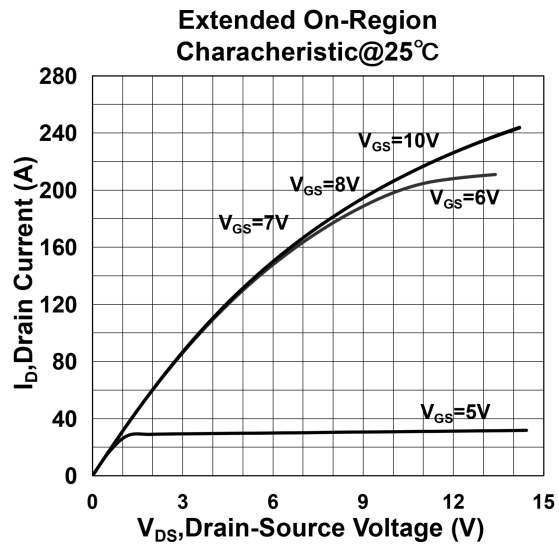
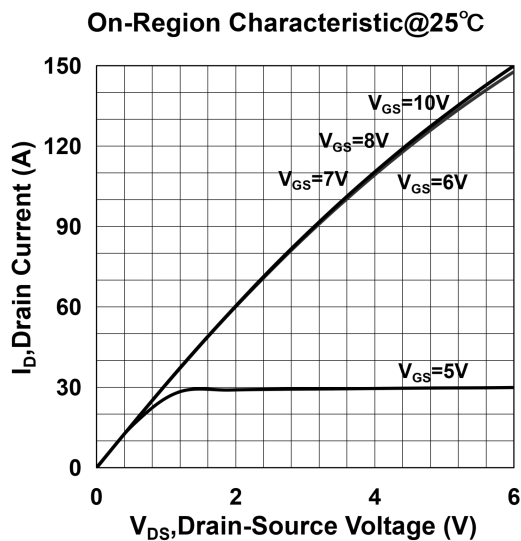
1. Pulse width limited by maximum junction temperature
2. E_{AS} test condition: $L=0.75mH, V_{DS}=50V, I_{AS}=100A, R_G=25\Omega$, starting $T_C=25^{\circ}C$

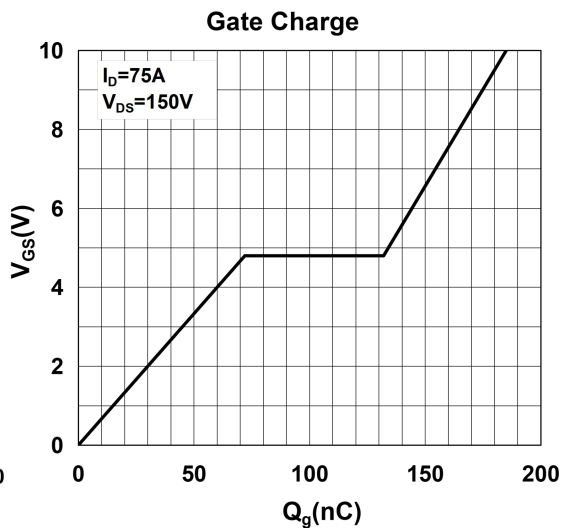
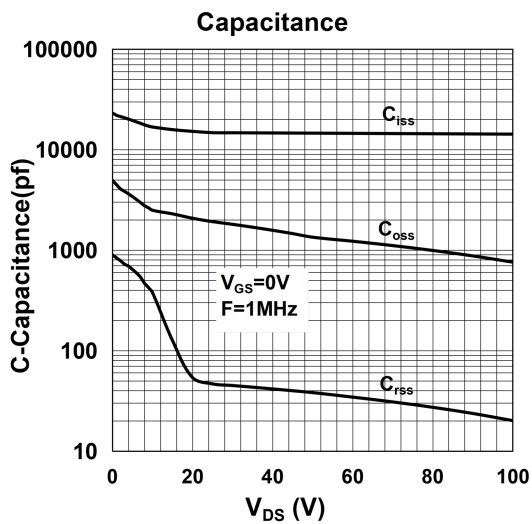
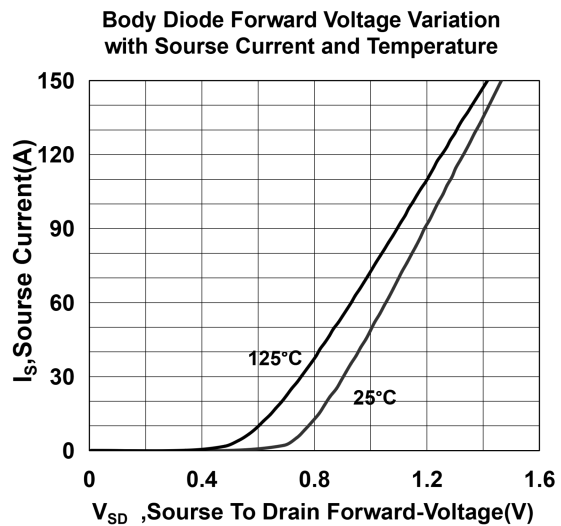
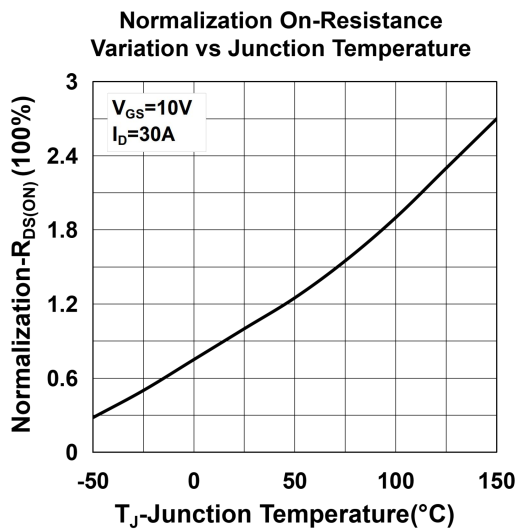
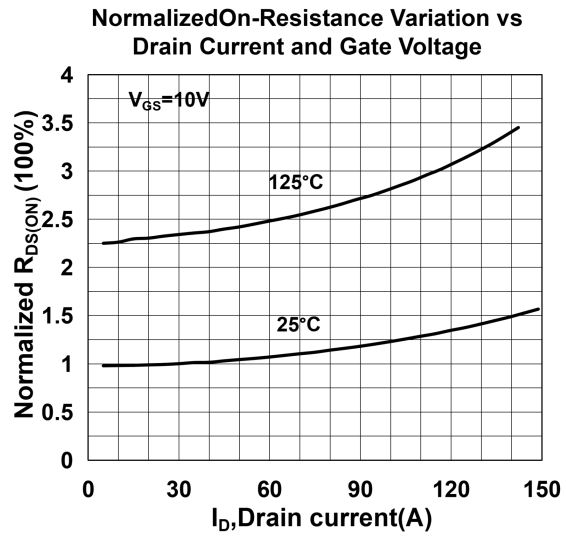
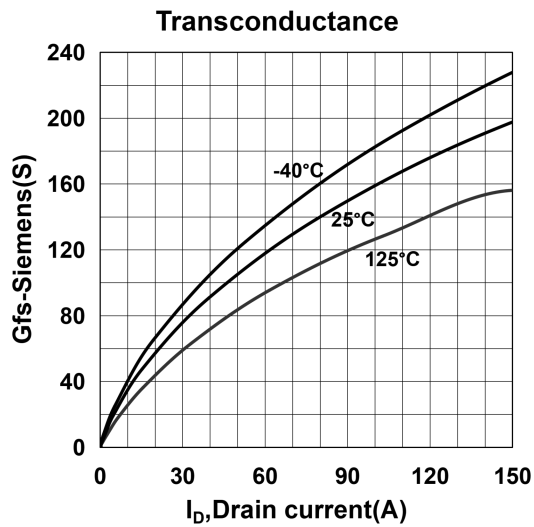
3. $V_{DD} \leq BVD_{SS}$, $I_{SD} \leq I_{DM}$, $di/dt \leq 300A/\mu s$, Starting $T_J = 25^\circ C$
4. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$
5. Essentially independent of operating temperature

Order Information

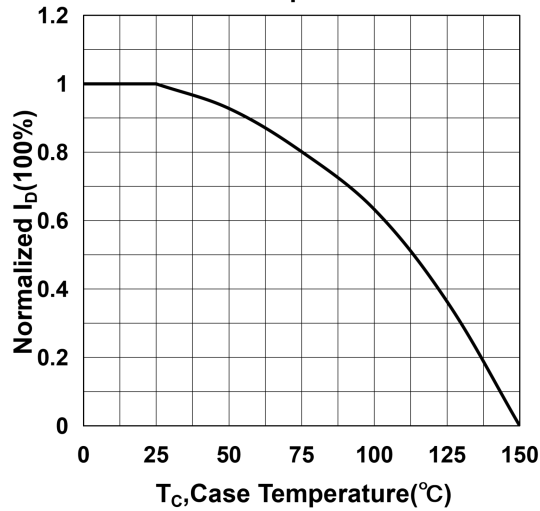
Marking	Package
MS150N30HGF4	SOT-227

Electrical Characteristics

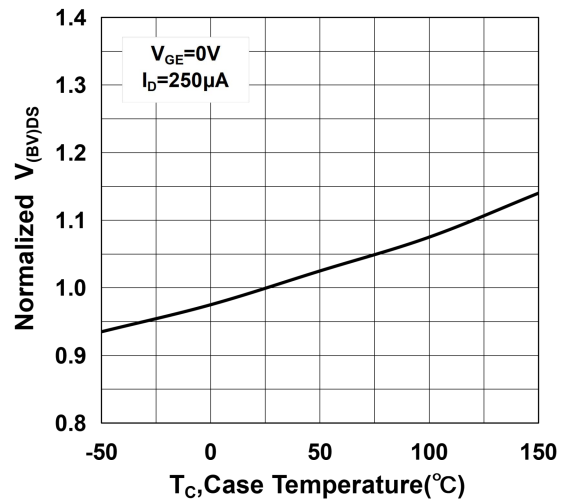




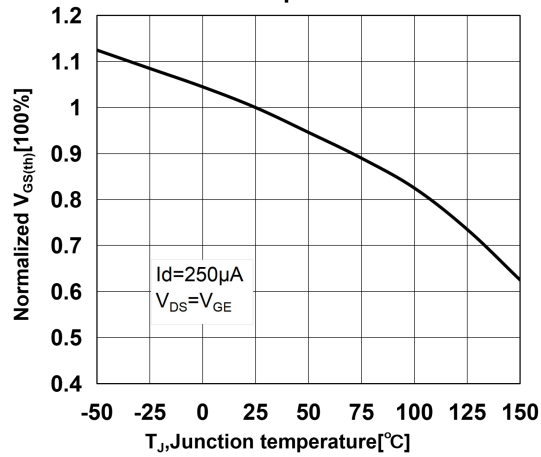
Maximum Drain Current vs Case Temperature



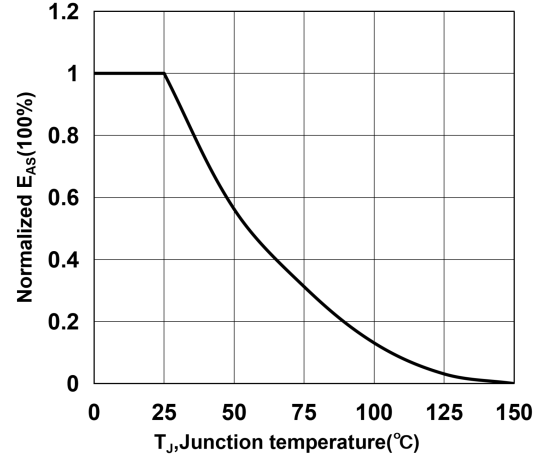
Normalized $V_{(BV)DS}$ vs temperature



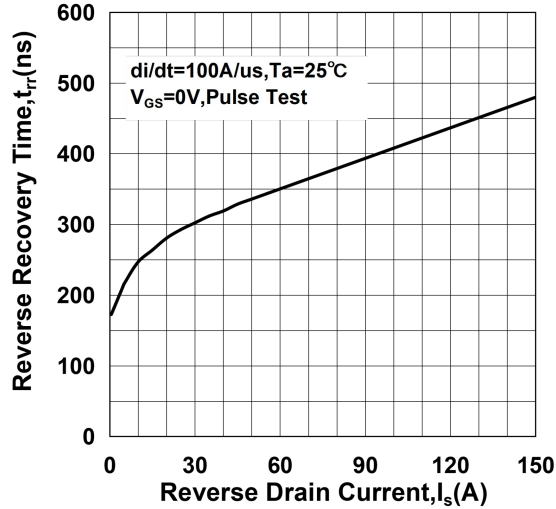
Normalized gate threshold voltage vs temperature



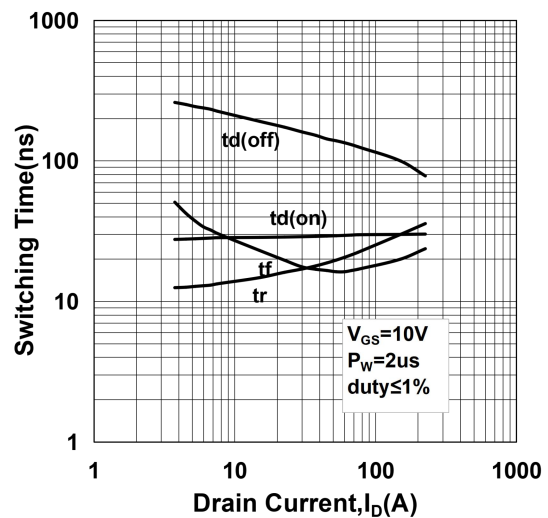
Normalized maximum avalanche energy vs temperature

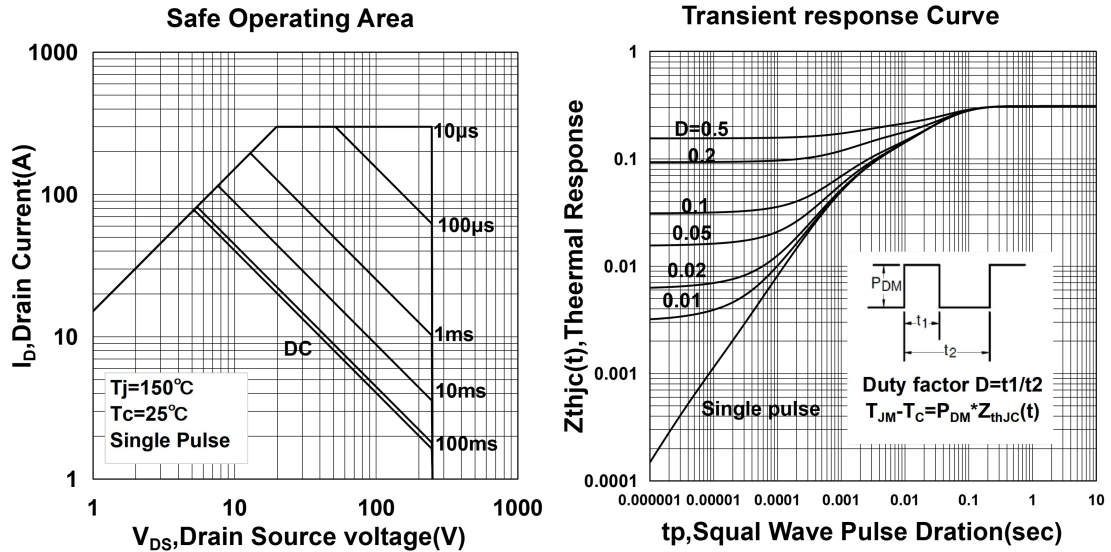


Body Diode Reverse Recovery Time vs Source to Drain Current



Switching Characteristics





Package Mechanical DATA

