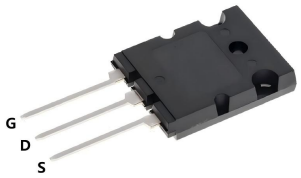
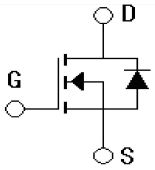
Features



- V_{DS}=1000V,I_D=55A
  $R_{DS(on)}$<0.28Ω
- avalanche tested and current rated
- Fast intrinsic Rectifier

Applications



- High power density
- Easy to mount
- Space savings

Absolute Ratings (Tc=25℃)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DSS}	1000	V
Gate-Source Voltage	V_{GSS}	±30	V
Drain Current-continuous	I_D	55	A
Drain Current-pulse（1）	I_{DM}	110	A
Avalanche current	I_{AR}	15	A
Single Pulsed Avalanche Energy（2）	E_{AS}	2368	mJ
Maximum Power Dissipation	P_D	1042	W
Operating Temperature Range	T_J	-40~+150	℃
Storage Temperature Rang	T_{STG}	-55~+150	℃
Maximum lead temperature for soldering purposes	T_L	300	℃
Minimum isolation voltage for case to terminal	V_{ISO}	3.0	KV

Electrical Characteristics(T_{CASE}=25℃ 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}=±30V，V_{DS}=0V	-	-	±100	nA
On-Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250μA	3.0	-	5.0	V
Static Drain-Source On-Resistance(3)	$R_{DS(ON)}$	V_{GS}=10V,I_D=10A	-	211	280	mΩ
Forward Transconductance	g_{fs}	V_{DS}=10V,I_D=10A (note3)	-	16	-	S
Dynamic Characteristics						
Input capacitance	C_{iss}	V_{DS}=25V, V_{GS}=0V, f=1.0MHz	-	8442	-	pF
Output capacitance	C_{oss}		-	758	-	pF
Reverse transfer capacitance	C_{rss}		-	27	-	pF

Electrical Characteristics(T_{CASE}=25℃ unless otherwise specified)

Parameter	Symbol	Tests conditions	Min	Typ	Max	Units
Switching-Characteristics						
Turn-On delay time	$t_{d(on)}$	V_{DS}=500V,I_D=27A, R_g=25Ω,V_{GS}=10V (note3,4)	-	45	-	ns
Turn-On rise time	t_r		-	25	-	ns
Turn-Off delay time	$t_{d(Off)}$		-	120	-	ns
Turn-Off rise time	t_f		-	18	-	ns
Total Gate Charge	Q_g	V_{DS}=500V,I_D=27A, V_{GS}=10V (note3,4)	-	200	-	nC
Gate-Source charge	Q_{gs}		-	42	-	nC
Gate-Drain charge	Q_{gd}		-	114	-	nC
Drain-Source Diode Characteristics and Maximum Ratings						
Maximum Continuous Drain-Source Diode Forward Curret	V_{SD}	V_{GS}=0V,I_S=1A	-	0.65	1.2	V
Diode Forward Current	I_S	T_C=25℃	-	-	55	A
Reverse recovery time	Trr	I_S=27A, -dI_F/dt=100A/μs V_R=100V,V_{GS}=0V	-	0.3	-	us
Reverse Recovery Charge	Qrr		-	8.2	-	uC
Reverse recovery current	I_{RR}		-	16.5	-	A

Thermal Characteristic

Parameter	Symbol	Max	Unit
Thermal Resistance,junction to Case	R_{th}(j-C)	0.12	℃/W
Case to Sink Thermal Resistance, junction-Ambient	R_{th}(C-A)	32.5	

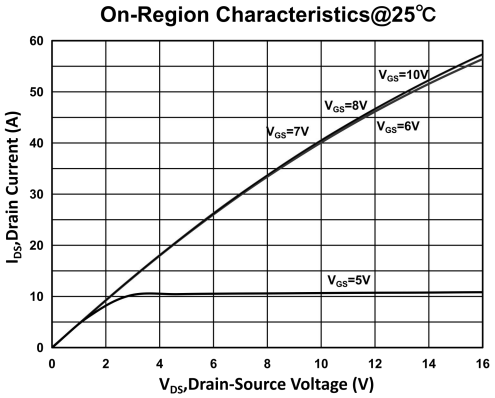
Order Message

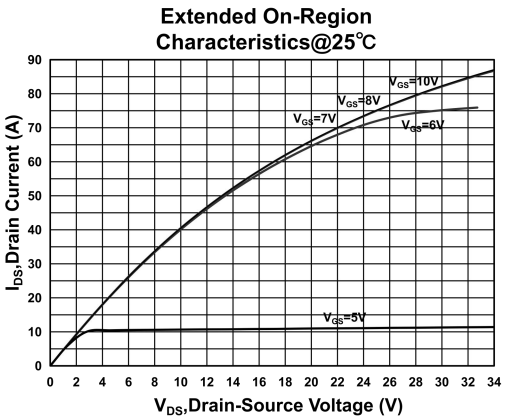
Marking	Package
MS55N100HGB3	TO-264

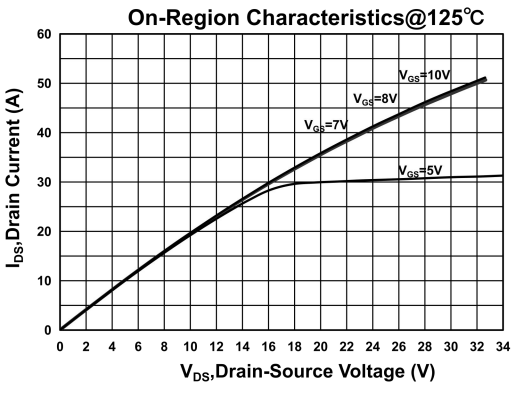
Notes:

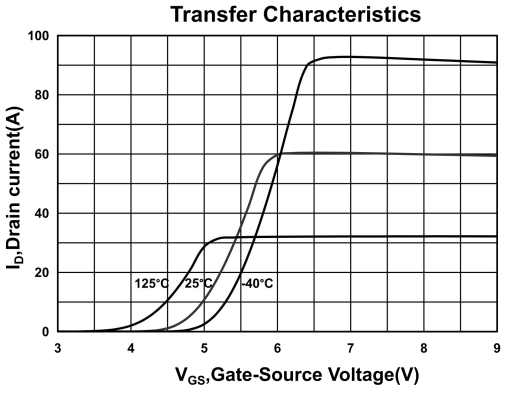
1. Repetitive Rating : Pulse width limited by maximum junction temperature
2. L = 20 mH, I_{AS} = I_{AR}, V_{DD} = 50V, R_G = 25 Ω, Starting T_J = 25°C
3. Pulse Test : Pulse width ≤ 300us, Duty cycle ≤ 2%
4. Essentially independent of operating temperature

Electrical Characteristics

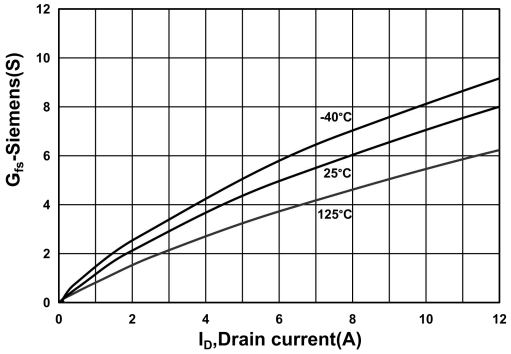




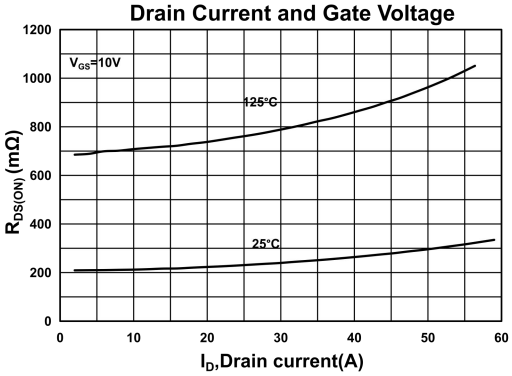




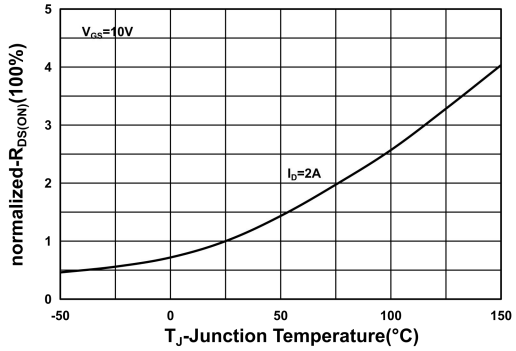
Transconductance



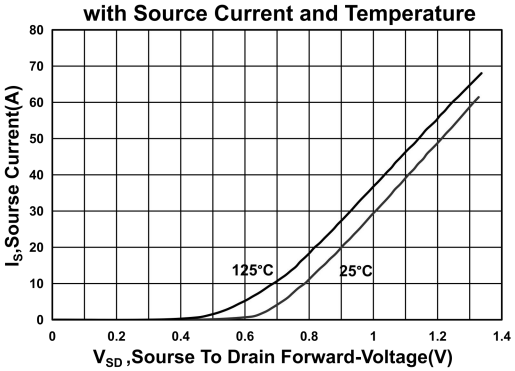
On-Resistance Variation vs Drain Current and Gate Voltage



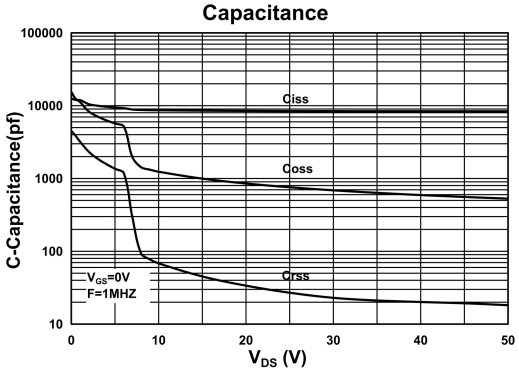
On-Resistance Variation vs Temperature



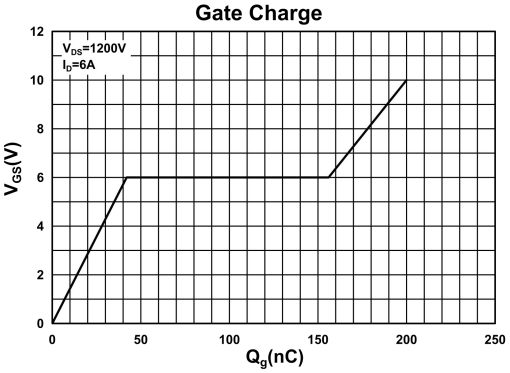
Body Diode Forward Voltage Variation with Source Current and Temperature



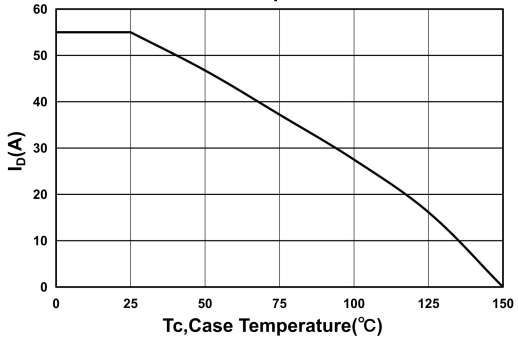
Capacitance



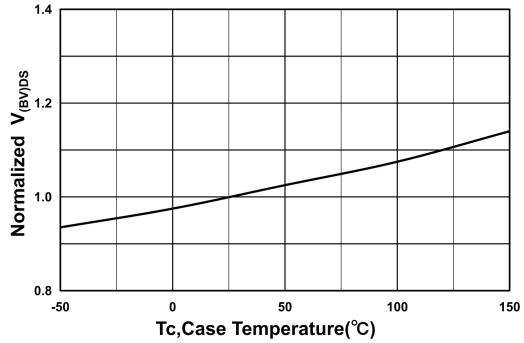
Gate Charge

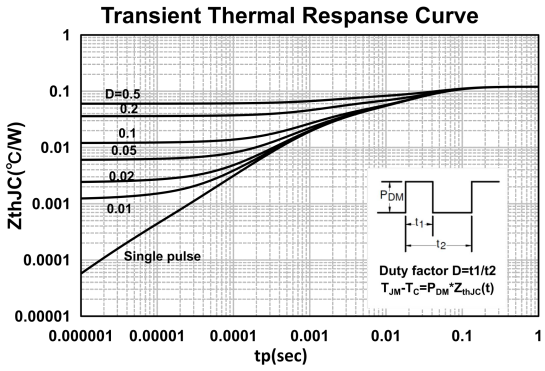


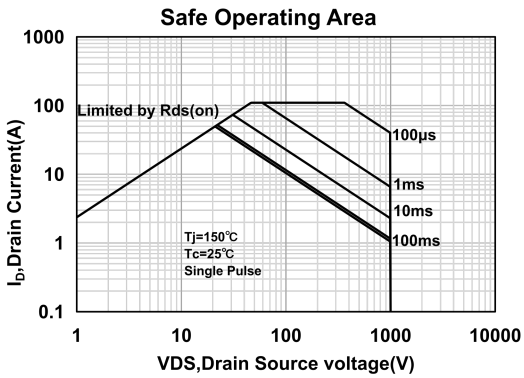
Maximum Drain Current vs Case Temperature



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







Package Mechanical DATA