ShinDengen

P232LG10GN

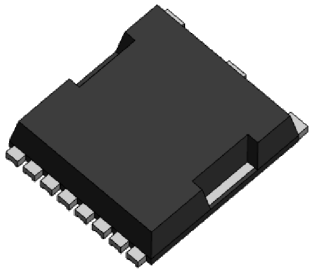
Power MOSFETs
100V, 232A, N-channel

Feature

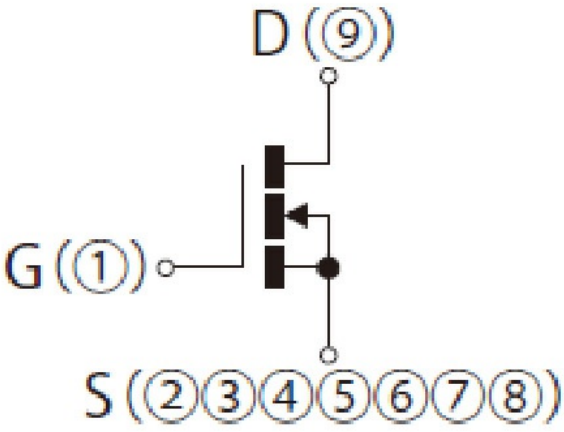
- N-channel
- SMD
- Super Large Current
- Low Ron
- 10V Gate Drive
- Low Capacitance
- Halogen free
- Pb free terminal
- RoHS:Yes

OUTLINE

Package (House Name): LG
Package (JEDEC Code): MO-299B



Equivalent circuit



Absolute Maximum Ratings

Item	Symbol	Conditions	Ratings	Unit
Storage temperature	Tstg		-55 to 175	℃
Channel tempertature	Tch		-55 to 175	℃
Drain-source voltage	V_{DSS}		100	V
Gate-source voltage	V_{GSS}		±20	V
Continuous drain current(DC)	I_D		232	A
Continuous drain current(Peak)	I_{DP}	Pulse width 10μs, Duty=1/100	696	A
Continuous source current(DC)	Is		232	A
Total power dissipation	P_T	With heatsink	441	W
Single avalanche current	I_{AS}	Starting Tch=25℃ Tch≦150℃	85	A
Single avalanche energy	E_{AS}	Starting Tch=25℃ Tch≦150℃	361	mJ

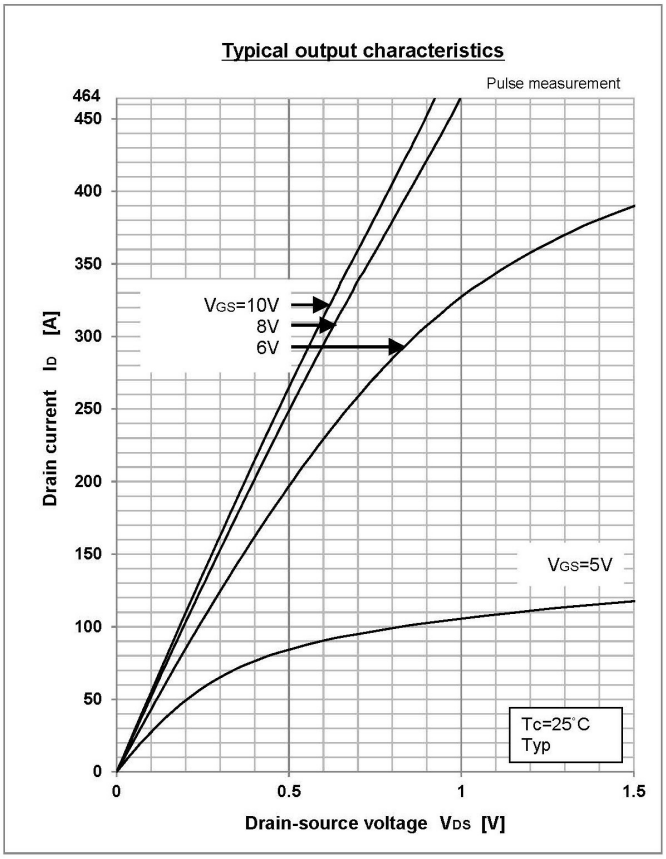
※ ：See the original Specifications

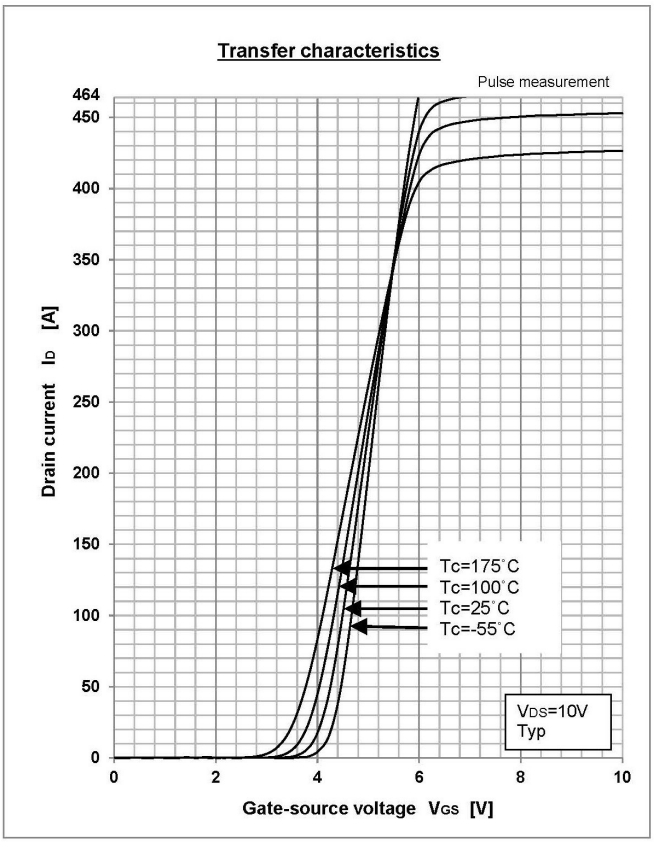
Electrical Characteristics

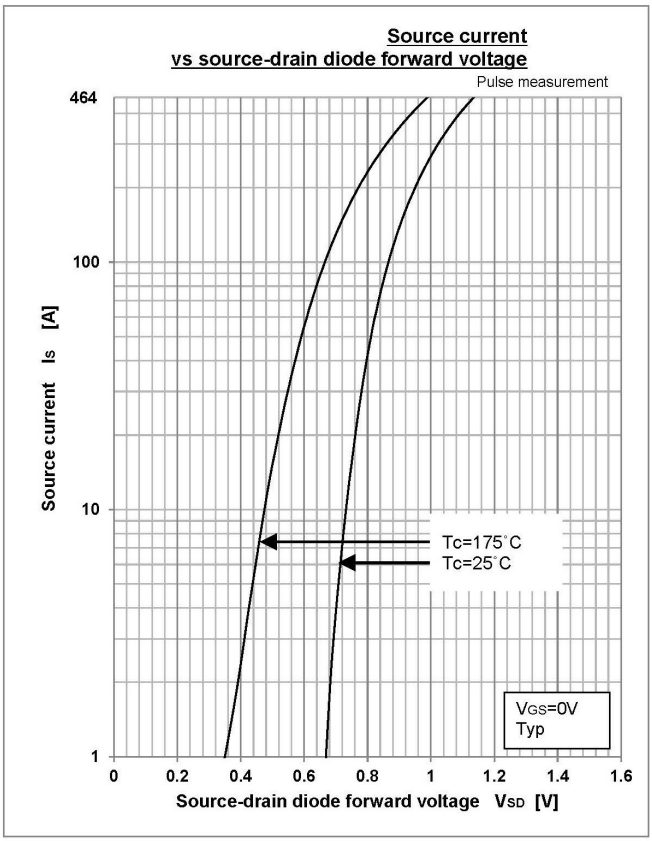
Item	Symbol	Conditions	Ratings			Unit
			MIN	TYP	MAX	
Drain-Source breakdown voltage	$V_{(BR)DSS}$	ID=1mA, VGS=0V	100			V
Zero gate voltage drain current	I_{DSS}	VDS=100V, VGS=0V			1	μA
Gate-source leakage current	I_{GSS}	VGS=±20V, VDS=0V			±0.1	μA
Forward transconductance	g_{fs}	ID=58A, VDS=10V	45			S
Static drain-source on-state resistance	$R_{DS(ON)}$	ID=100A, VGS=10V		0.00183	0.0022	Ω
Gate threshold voltage	Vth	ID=1mA, VDS=10V	2	3	4	V
Source-drain diode forward voltage	V_{SD}	IS=100A, VGS=0V			1.2	V
Thermal resistance	Rth(j-c)	Junction to case, With heatsink			0.34	℃/W
Total gate charge	Qg	VDS=80V, VGS=10V, ID=116A		120		nC
Gate to source charge	Qgs	VDS=80V, VGS=10V, ID=116A		36		nC
Gate to drain charge	Qgd	VDS=80V, VGS=10V, ID=116A		43		nC
Input capacitance	Ciss	VDS=50V, VGS=0V, f=100kHz		8140		pF
Reverce transfer capacitnce	Crss	VDS=50V, VGS=0V, f=100kHz		27		pF
Output capacitance	Coss	VDS=50V, VGS=0V, f=100kHz		1425		pF
Turn-on delay time	td(on)	ID=50A, RL=1Ω, VDS=50V, Rg=0Ω, +VGS=10V, -VGS=0V		16		ns
Rise time	tr	ID=58A, RL=0.86Ω, VDS=50V, Rg=0Ω, +VGS=10V, -VGS=0V		16		ns
Turn-off delay time	td(off)	ID=58A, RL=0.86Ω, VDS=50V, Rg=0Ω, +VGS=10V, -VGS=0V		37		ns
Fall time	tf	ID=58A, RL=0.86Ω, VDS=50V, Rg=0Ω, +VGS=10V, -VGS=0V		16		ns
Diode reverse recovery time	trr	IS=116A, VGS=0V, -di/dt=100A/μs		99		ns
Diode reverse recovery charge	Qrr	IS=116A, VGS=0V, -di/dt=100A/μs		241		nC

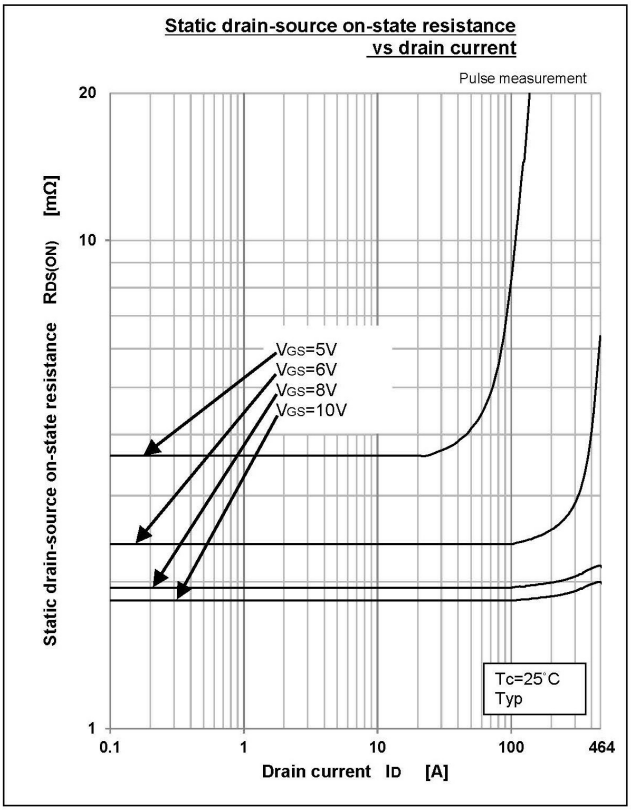
※ ：See the original Specifications

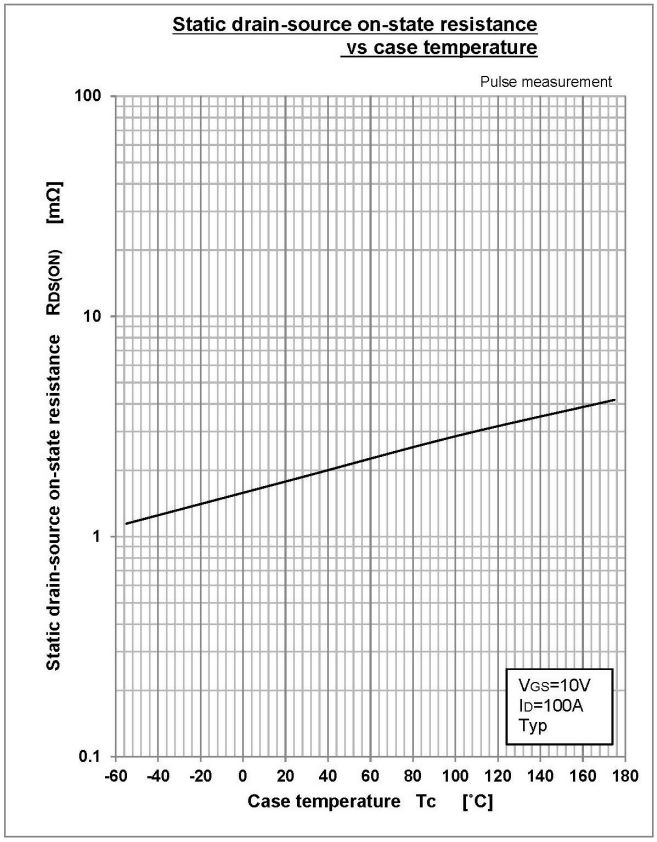
CHARACTERISTIC DIAGRAMS

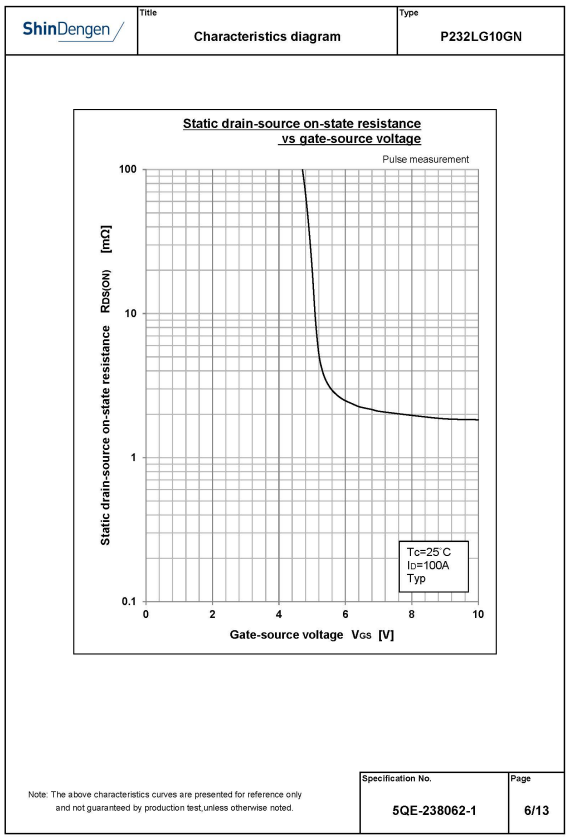









Static drain-source on-state resistance
vs case temperature
Pulse measurement
Static drain-source on-state resistance RDS(ON) [mΩ]
100
10
1
0.1
-60 -40 -20 0 20 40 60 80 100 120 140 160 180
Case temperature Tc [°C]
VGS=10V
ID=100A
Typ


ShinDengen
Title
Characteristics diagram
Type
P232LG10GN
Static drain-source on-state resistance
vs gate-source voltage
Pulse measurement
Static drain-source on-state resistance RDS(ON) [mΩ]
100
10
1
0.1
0 2 4 6 8 10
Gate-source voltage VGS [V]
Tc=25°C
ID=100A
Typ
Note: The above characteristics curves are presented for reference only and not guaranteed by production test,unless otherwise noted.
Specification No.
5QE-238062-1
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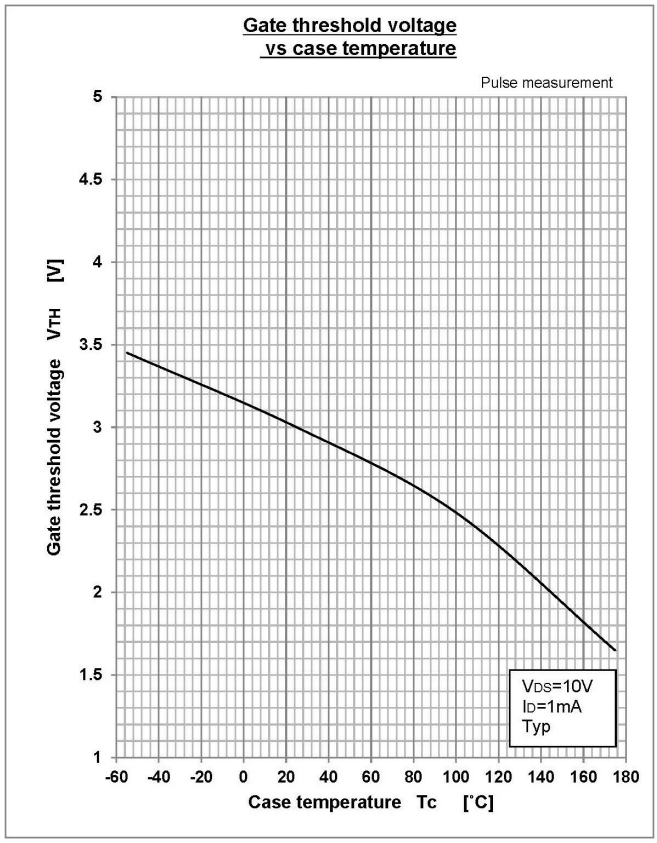
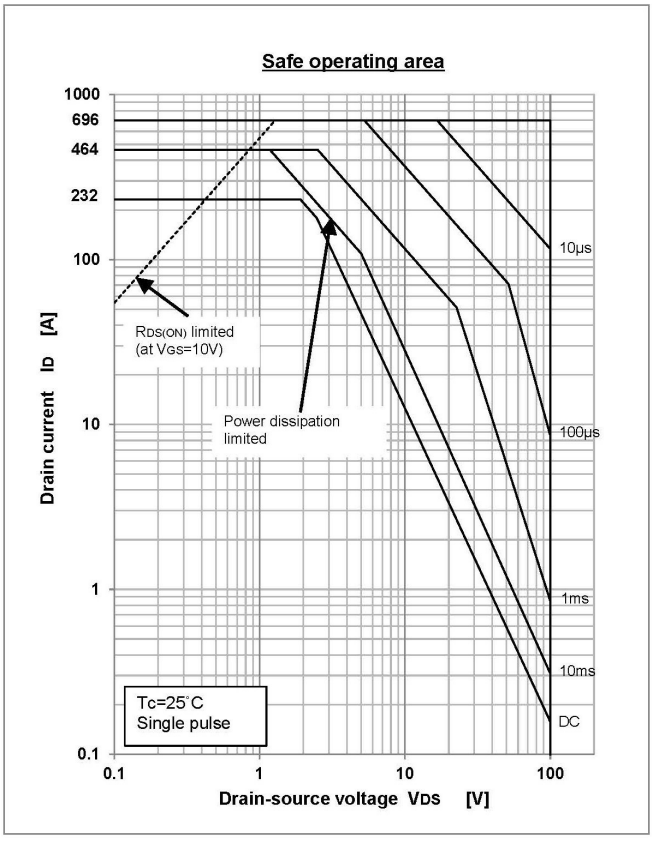
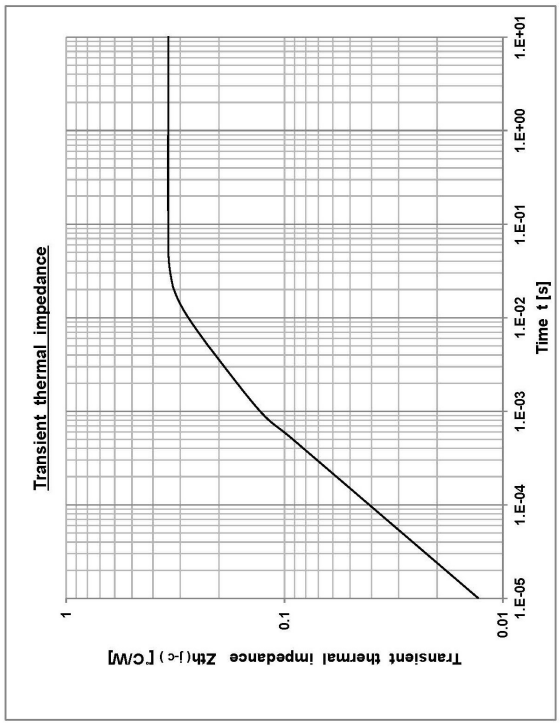
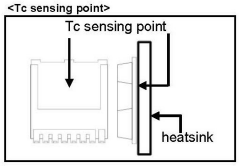

Gate threshold voltage
vs case temperature
Pulse measurement
Gate threshold voltage VTH [V]
5
4.5
4
3.5
3
2.5
2
1.5
1
-60 -40 -20 0 20 40 60 80 100 120 140 160 180
Case temperature Tc [°C]
VDS=10V
ID=1mA
Typ


Safe operating area
Drain current ID [A]
1000
696
464
232
100
10
1
0.1
0.1 1 10 100
Drain-source voltage VDS [V]
RDS(ON) limited
(at VGS=10V)
Power dissipation
limited
10μs
100μs
1ms
10ms
DC
Tc=25°C
Single pulse

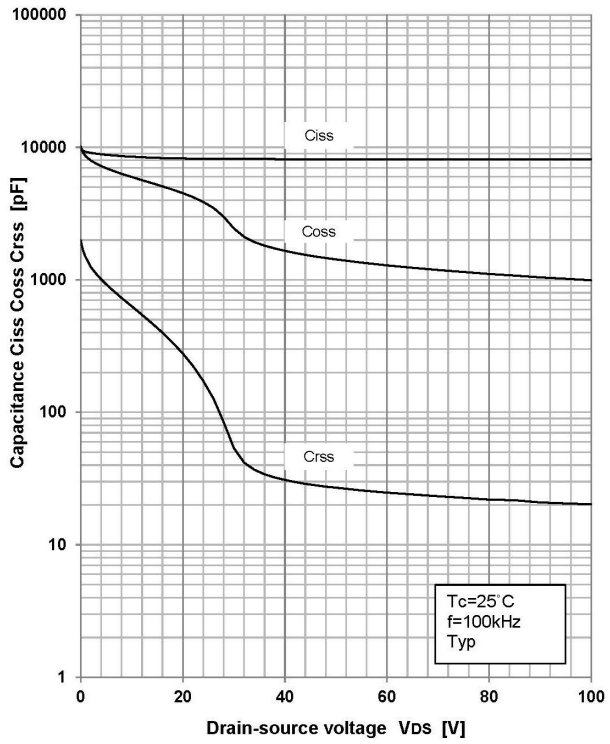


<Tc sensing point>

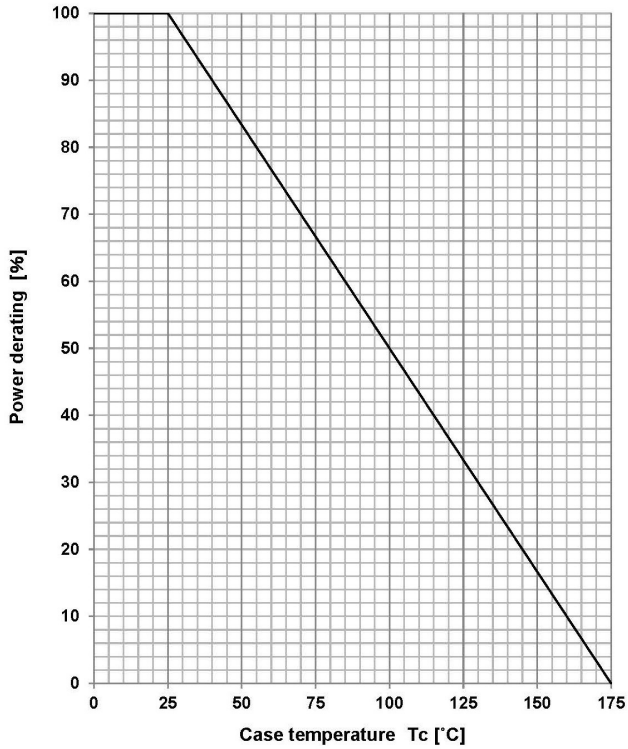


Specification No.

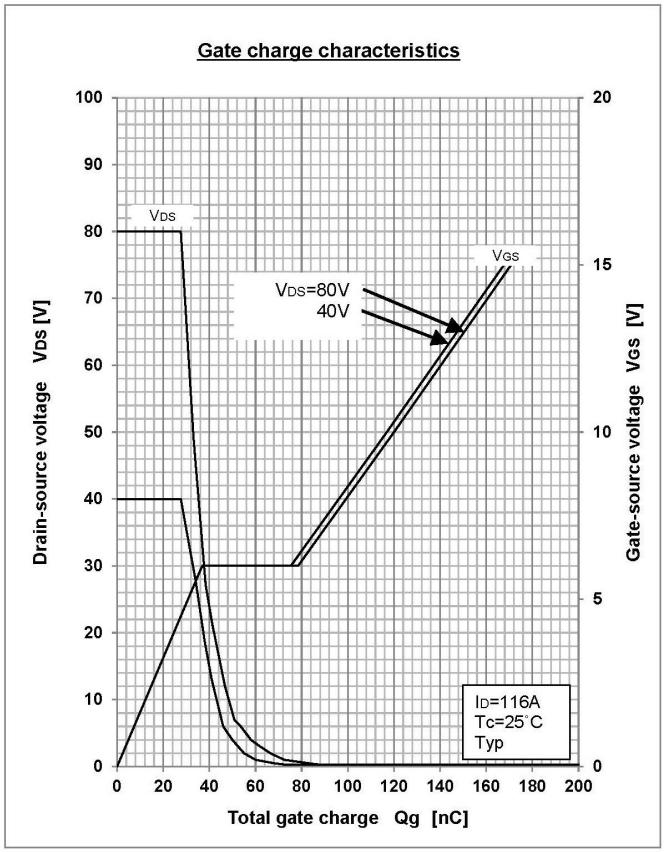
Capacitance characteristics

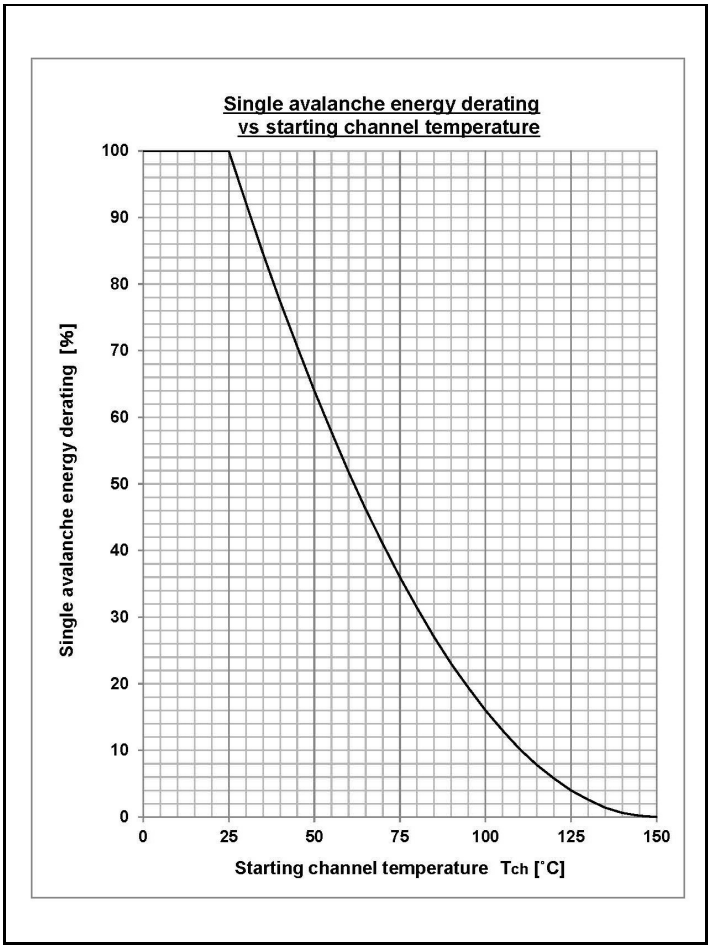


Power derating vs case temperature



Gate charge characteristics



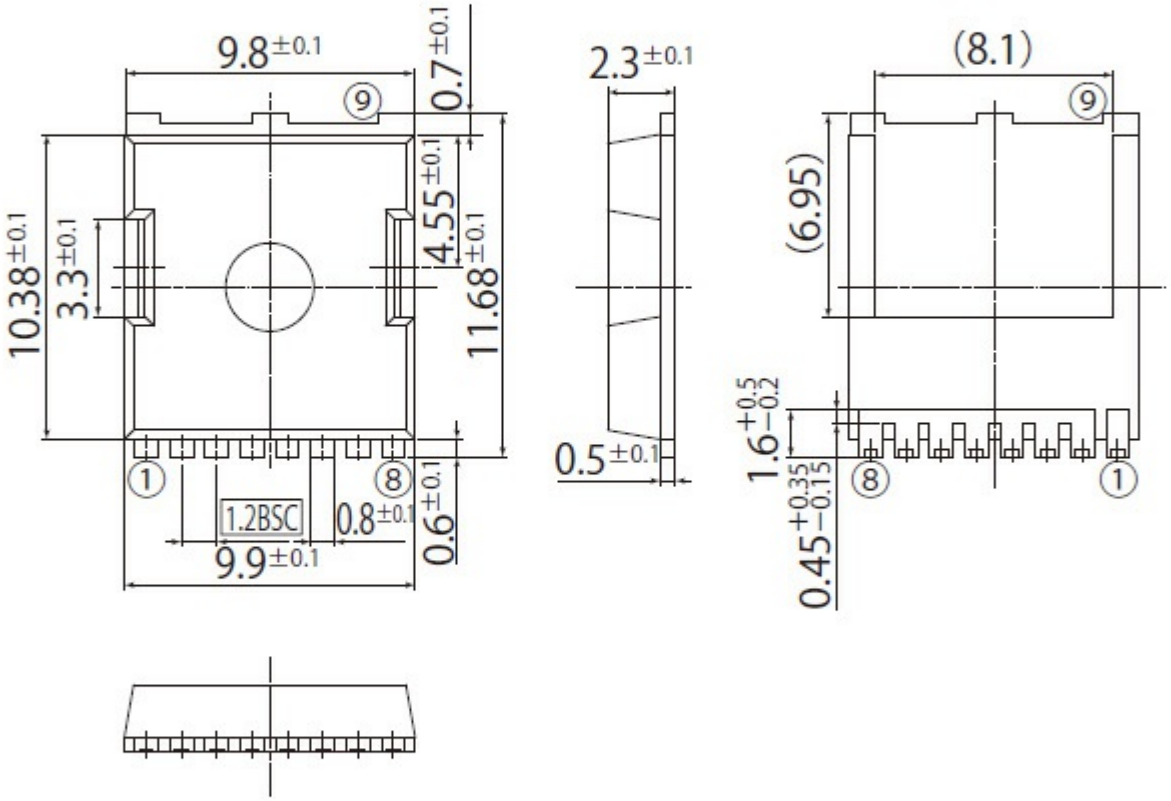

Single avalanche energy derating
vs starting channel temperature
Single avalanche energy derating [%]
100
90
80
70
60
50
40
30
20
10
0
0
25
50
75
100
125
150
Starting channel temperature Tch [°C]

Outline Dimensions

unit:mm

G9

JEDEC Code	MO-299B
JEITA Code	–
House Name	LG(TOLL)



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