ShinDengen

P18LA12SL

Power MOSFETs
120V, 18A, N-channel

Feature

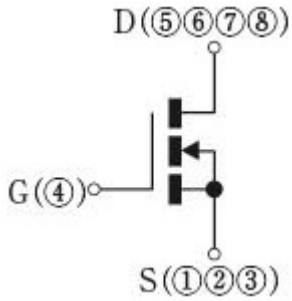
- N-channel
- Small SMD
- Low Ron
- 4.5V Gate Drive
- Low Capacitance
- Halogen free
- Pb free terminal
- RoHS:Yes

OUTLINE

Package (House Name): LA



Equivalent circuit



Absolute Maximum Ratings (unless otherwise specified : Tc=25℃)

Item	Symbol	Conditions	Ratings	Unit
Storage temperature	Tstg		-55 to 150	℃
Channel tempertature	Tch		-55 to 150	℃
Drain-source voltage	V_{DSS}		120	V
Gate-source voltage	V_{GSS}		±20	V
Continuous drain current(DC)	I_D		18	A
Continuous drain current(Peak)	I_{DP}	Pulse width 10μs, duty=1/100	54	A
Total power dissipation	P_T		99	W
Single avalanche current	I_{AS}	Starting Tch=25℃ Tch≦150℃	18	A
Single avalanche energy	E_{AS}	Starting Tch=25℃ Tch≦150℃	43	mJ

※ :See the original Specifications

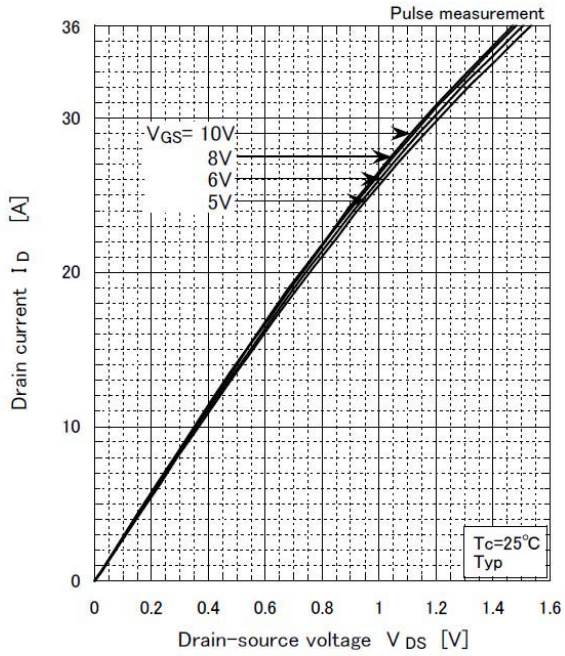
Electrical Characteristics (unless otherwise specified : Tc=25℃)

Item	Symbol	Conditions	Ratings			Unit
			MIN	TYP	MAX	
Drain-Source breakdown voltage	$V_{(BR)DSS}$	ID=1mA, VGS=0V	120			V
Zero gate voltage drain current	I_{DSS}	VDS=120V, VGS=0V			1	μA
Gate-source leakage current	I_{GSS}	VGS=±20V, VDS=0V			±0.1	μA
Forward transconductance	g_{fs}	ID=9A, VDS=10V	9			S
Static drain-source on-state resistance	$R_{DS(ON)}$	ID=9A, VGS=10V		0.035	0.044	Ω
Static drain-source on-state resistance	$R_{DS(ON)}$	ID=9A, VGS=4.5V		0.037	0.05	Ω
Gate threshold voltage	Vth	ID=1mA, VDS=10V	1.5	2	2.5	V
Source-drain diode forward voltage	V_{SD}	IS=18A, VGS=0V			1.5	V
Thermal resistance	Rth(j-c)	Junction to case, with heatsink			1.26	℃/W
Total gate charge	Qg	VDD=96V, VGS=10V, ID=18A		47		nC
Gate to source charge	Qgs	VDD=96V, VGS=10V, ID=18A		8.3		nC
Gate to drain charge	Qgd	VDD=96V, VGS=10V, ID=18A		12		nC
Input capacitance	Ciss	VDS=25V, VGS=0V, f=1MHz		2090		pF
Reverce transfer capacitnce	Crss	VDS=25V, VGS=0V, f=1MHz		73		pF
Output capacitance	Coss	VDS=25V, VGS=0V, f=1MHz		140		pF
Turn-on delay time	td(on)	ID=9A, RL=6.7Ω, VDD=60V, Rg=0Ω, VGS(+)=10V, VGS(-)=0V		4.3		ns
Rise time	tr	ID=9A, RL=6.7Ω, VDD=60V, Rg=0Ω, VGS(+)=10V, VGS(-)=0V		6.6		ns
Turn-off delay time	td(off)	ID=9A, RL=6.7Ω, VDD=60V, Rg=0Ω, VGS(+)=10V, VGS(-)=0V		32		ns
Fall time	tf	ID=9A, RL=6.7Ω, VDD=60V, Rg=0Ω, VGS(+)=10V, VGS(-)=0V		11		ns
Diode reverse recovery time	trr	IF=18A, VGS=0V, di/dt=100A/μs		57		ns
Diode reverse recovery charge	Qrr	IF=18A, VGS=0V, di/dt=100A/μs		120		nC

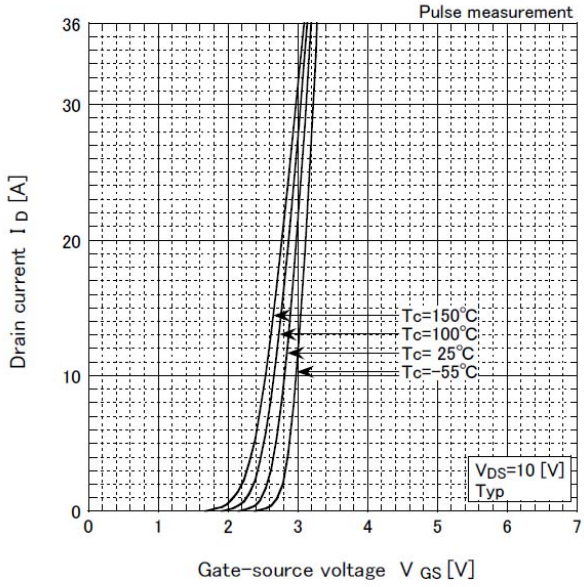
※ ：See the original Specifications

CHARACTERISTIC DIAGRAMS

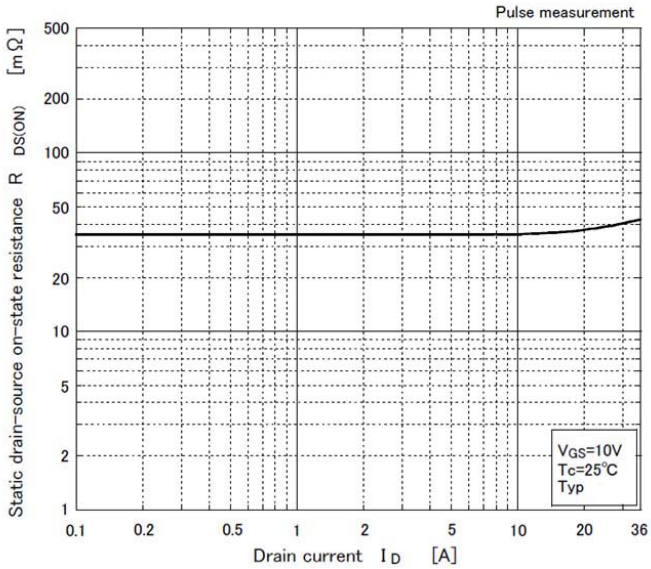
Typical output characteristics



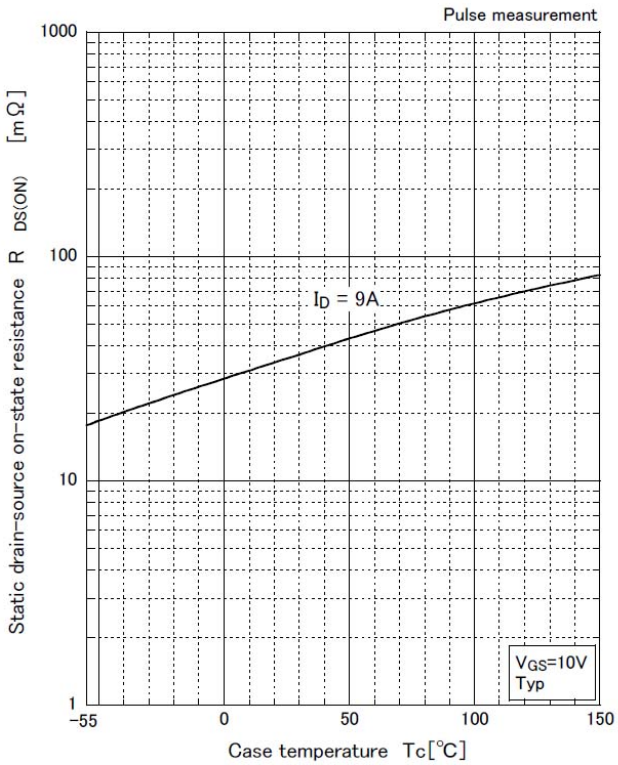
Transfer characteristics



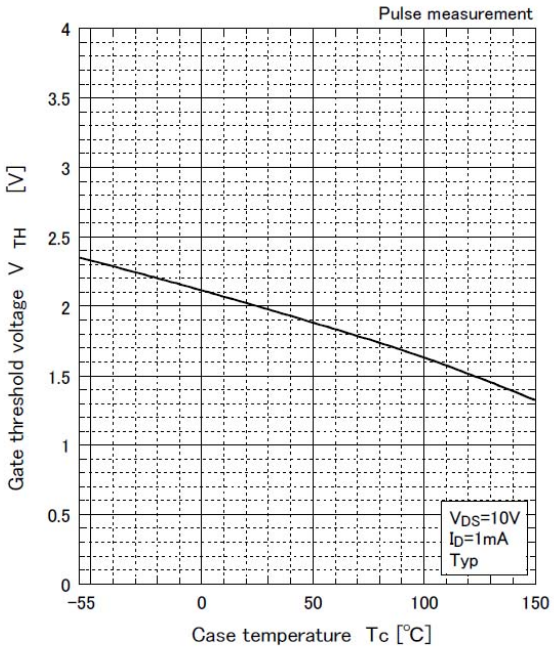
Static drain-source on-state resistance
vs drain current



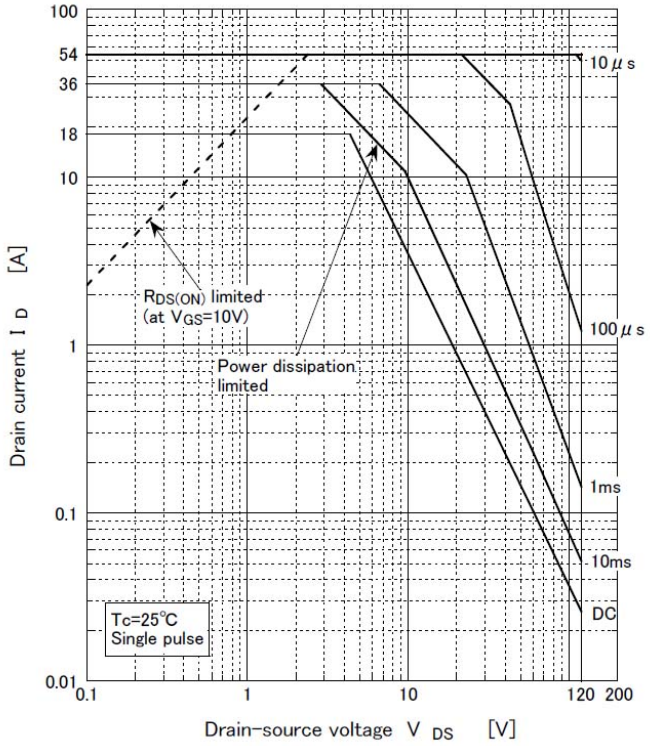
Static drain-source on-state resistance
vs case temperature

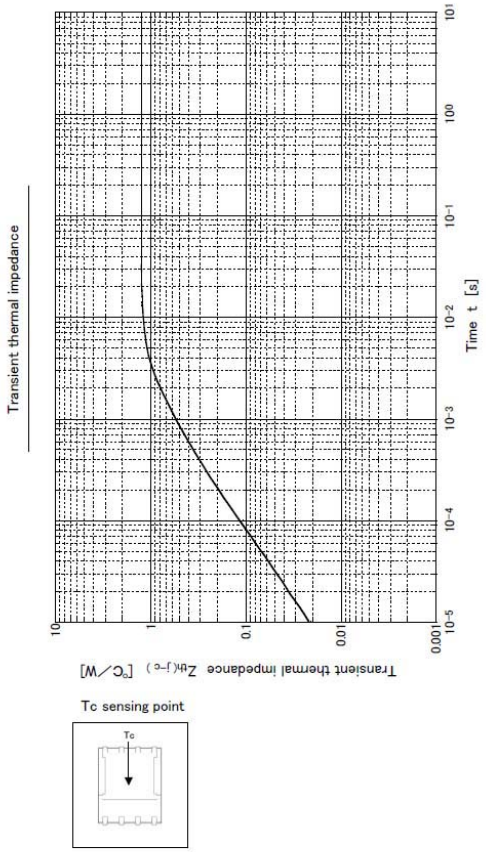


Gate threshold voltage
vs case temperature

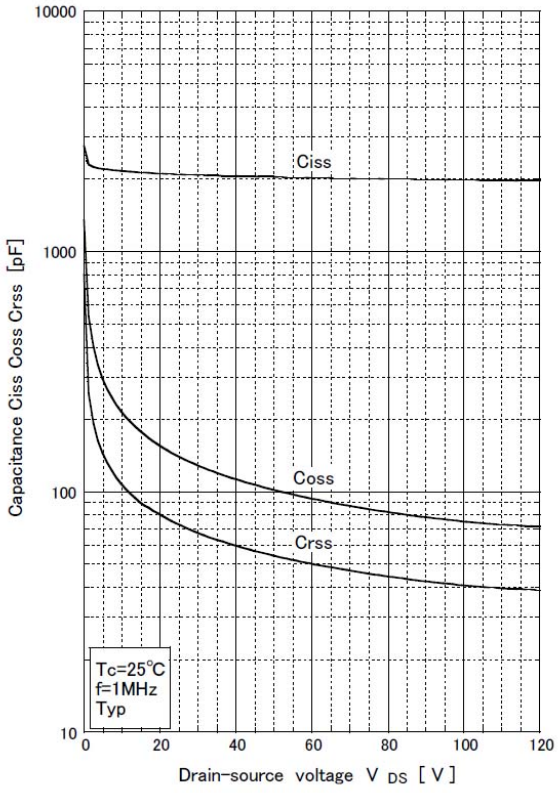


Safe operating area

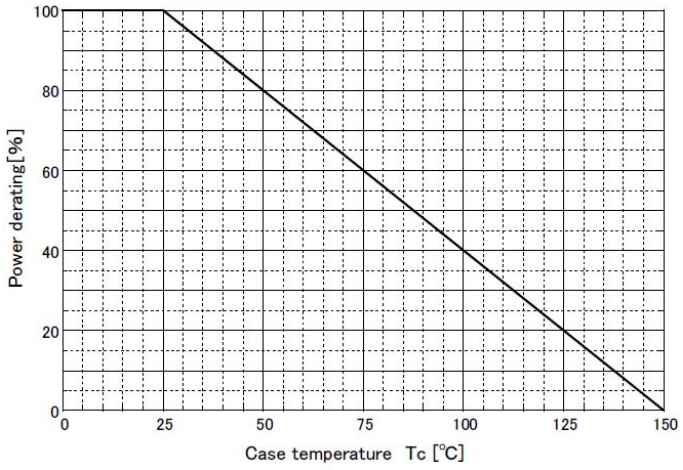




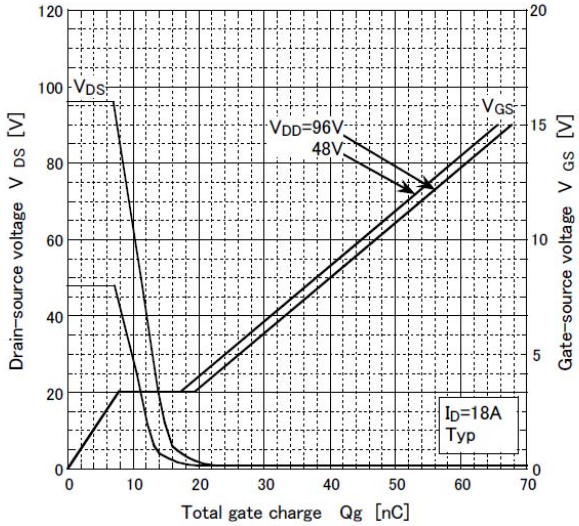
Capacitance characteristics



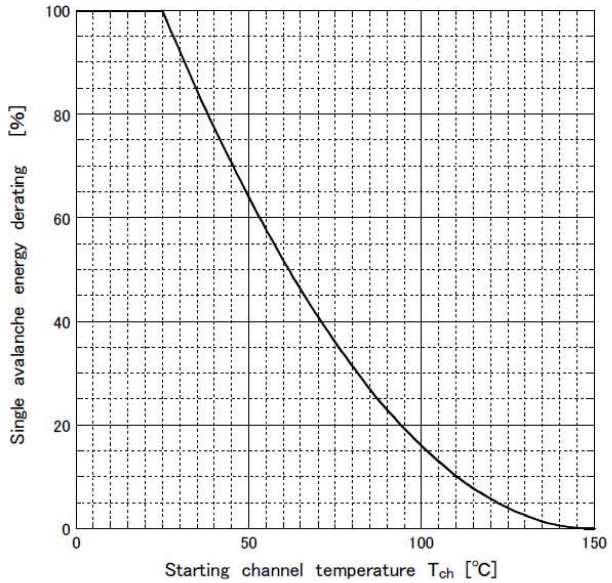
Power derating – case temperature



Gate charge characteristics



Single avalanche energy derating
vs channel temperature



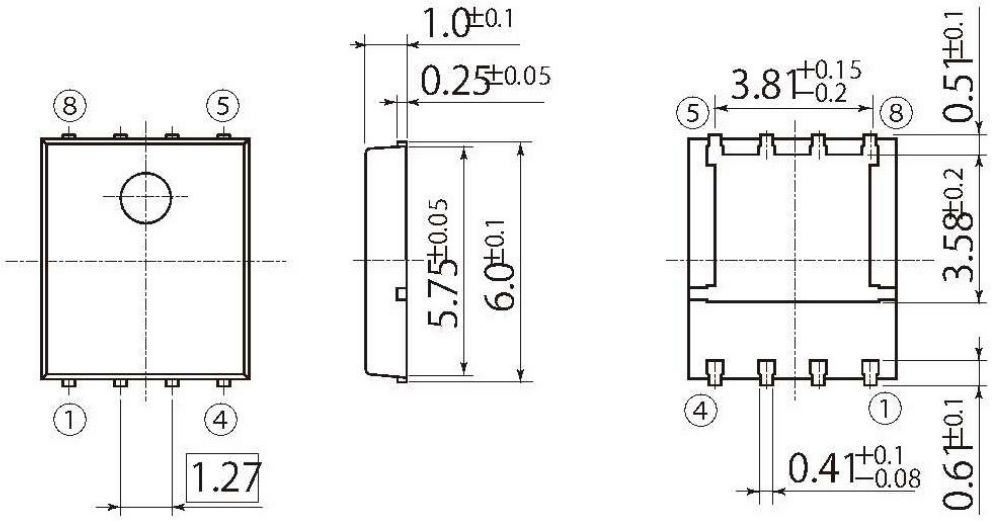
Outline Dimensions

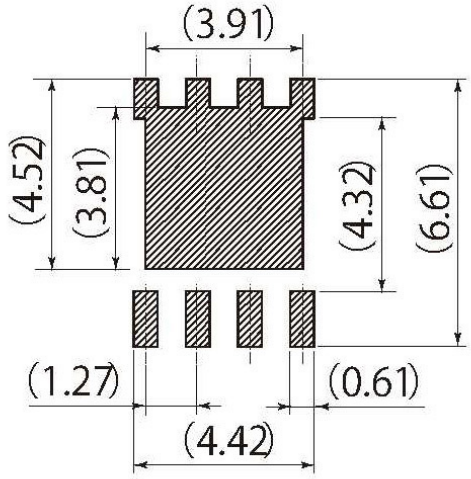
unit:mm

scale: 5/1

G6

JEDEC Code	–
JEITA Code	–
House Name	LA





Referential Soldering Pad

• Optimize soldering pad to the board design and soldering condition.

Notes

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   Computers, office automation and other office equipment, communication terminals, test and measurement equipment, audio/visual equipment, amusement equipment, consumer electronics, machine tools, personal electronic equipment, industrial equipment, etc.
   【Special applications】
   Transportation equipment (vehicles, ships, etc.), trunk-line communication equipment, traffic signal control systems, anti-disaster/crime systems, safety equipment, medical equipment, etc.
   【Specific applications】
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