ShinDengen

P64LF6QNK

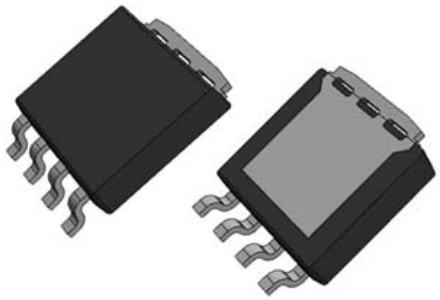
Power MOSFETs
60V, 64A, N-channel

Feature

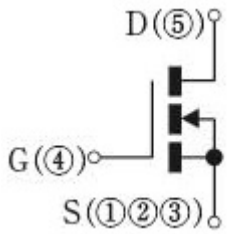
- N-channel
- Small SMD
- Large Current
- Low Ron
- 10V Gate Drive
- Low Capacitance
- Based on AEC-Q101
- Halogen free
- Pb free terminal
- RoHS:Yes

OUTLINE

Package (House Name): LF
Package (JEDEC Code): MO-235B similar



Equivalent circuit



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

Item	Symbol	Conditions	Ratings	Unit
Storage temperature	Tstg		-55 to 175	℃
Channel tempertature	Tch		-55 to 175	℃
Drain-source voltage	V_{DSS}		60	V
Gate-source voltage	V_{GSS}		±20	V
Continuous drain current(DC)	I_D		64	A
Continuous drain current(Peak)	I_{DP}	Pulse width 10μs, duty=1/100	192	A
Total power dissipation	P_T		168	W
Single avalanche current	I_{AS}	Starting Tch=25℃ Tch≦150℃	34	A
Single avalanche energy	E_{AS}	Starting Tch=25℃ Tch≦150℃	128	mJ

※ ：See the original Specifications

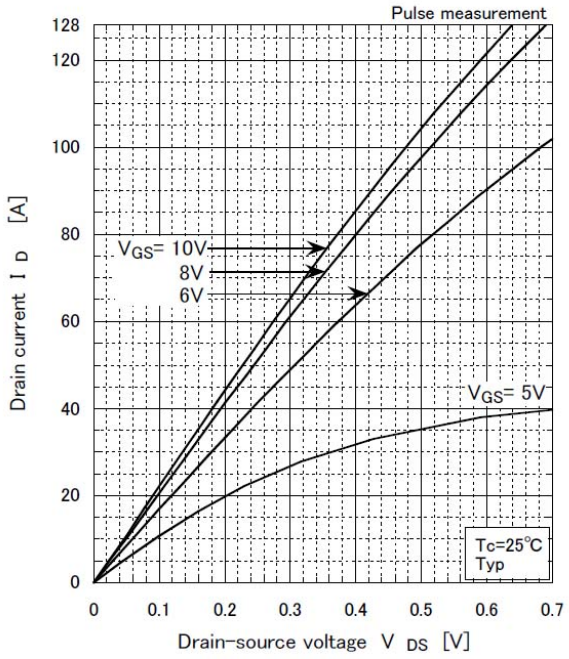
Electrical Characteristics (unless otherwise specified : Tc=25°C)

Item	Symbol	Conditions	Ratings			Unit
			MIN	TYP	MAX	
Drain-Source breakdown voltage	$V_{(BR)DSS}$	ID=1mA, VGS=0V	60			V
Zero gate voltage drain current	I_{DSS}	VDS=60V, VGS=0V			1	μA
Gate-source leakage current	I_{GSS}	VGS=±20V, VDS=0V			±0.1	μA
Forward transconductance	g_{fs}	ID=32A, VDS=10V	10			S
Static drain-source on-state resistance	$R_{DS(ON)}$	ID=32A, VGS=10V		0.0045	0.0057	Ω
Gate threshold voltage	Vth	ID=1mA, VDS=10V	2	3	4	V
Source-drain diode forward voltage	V_{SD}	IS=64A, VGS=0V			1.5	V
Thermal resistance	Rth(j-c)	Junction to case, with heatsink			0.89	°C/W
Total gate charge	Qg	VDD=48V, VGS=10V, ID=64A		61		nC
Gate to source charge	Qgs	VDD=48V, VGS=10V, ID=64A		18		nC
Gate to drain charge	Qgd	VDD=48V, VGS=10V, ID=64A		22		nC
Input capacitance	Ciss	VDS=25V, VGS=0V, f=1MHz		3540		pF
Reverce transfer capacitnce	Crss	VDS=25V, VGS=0V, f=1MHz		160		pF
Output capacitance	Coss	VDS=25V, VGS=0V, f=1MHz		365		pF
Turn-on delay time	td(on)	ID=32A, RL=0.94Ω, VDD=30V, Rg=0Ω, VGS(+)=10V, VGS(-)=0V		6.5		ns
Rise time	tr	ID=32A, RL=0.94Ω, VDD=30V, Rg=0Ω, VGS(+)=10V, VGS(-)=0V		19		ns
Turn-off delay time	td(off)	ID=32A, RL=0.94Ω, VDD=30V, Rg=0Ω, VGS(+)=10V, VGS(-)=0V		45		ns
Fall time	tf	ID=32A, RL=0.94Ω, VDD=30V, Rg=0Ω, VGS(+)=10V, VGS(-)=0V		19		ns
Diode reverse recovery time	trr	IF=64A, VGS=0V, di/dt=100A/μs		42		ns
Diode reverse recovery charge	Qrr	IF=64A, VGS=0V, di/dt=100A/μs		51		nC

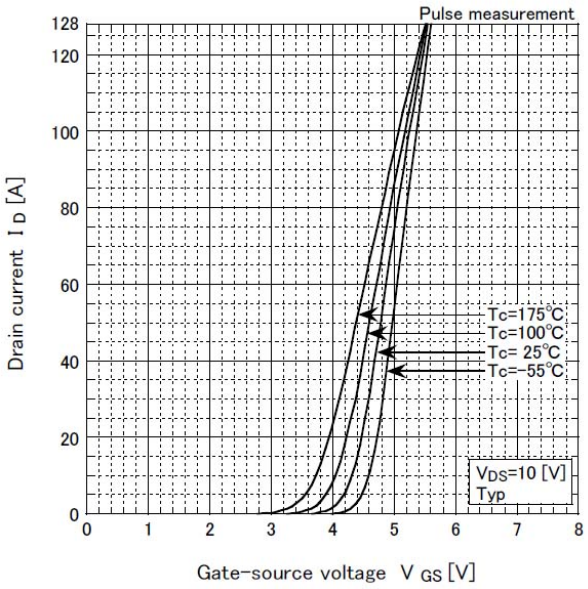
※ ：See the original Specifications

CHARACTERISTIC DIAGRAMS

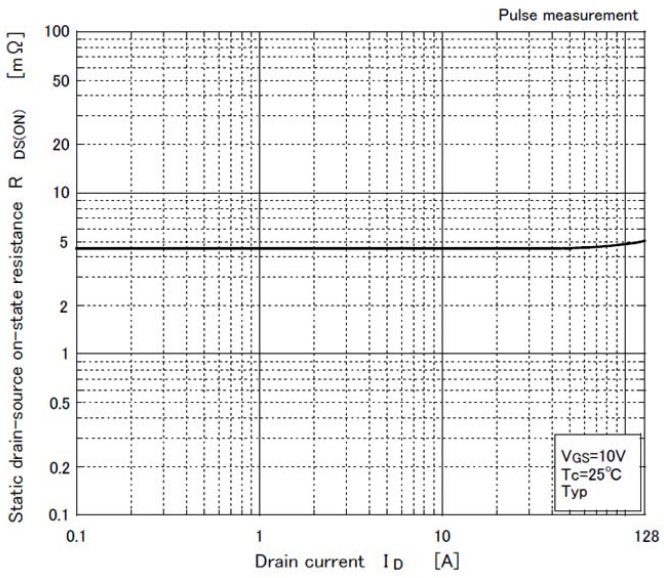
Typical output characteristics



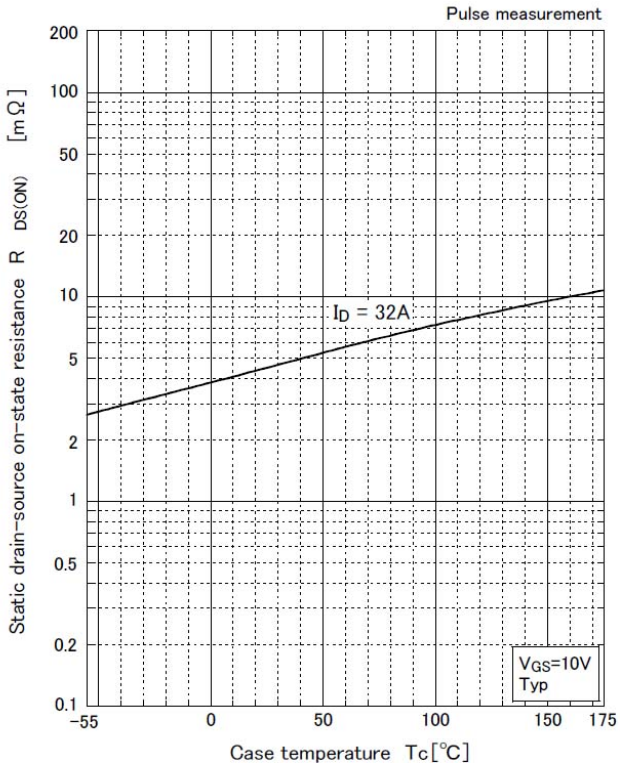
Transfer characteristics



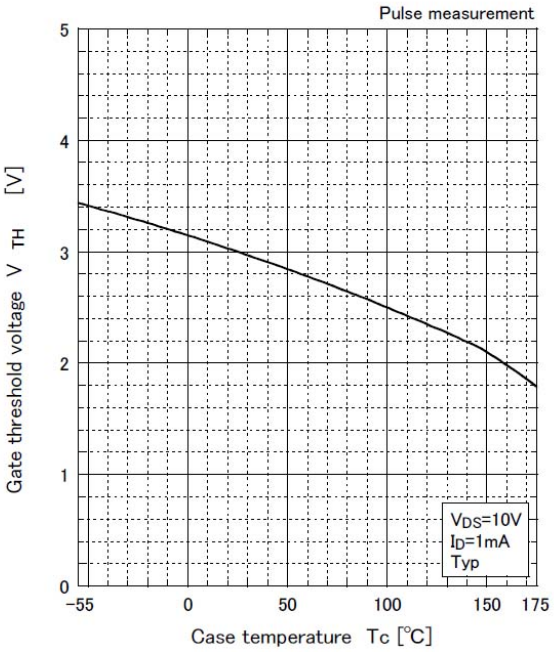
Static drain-source on-state resistance vs drain current



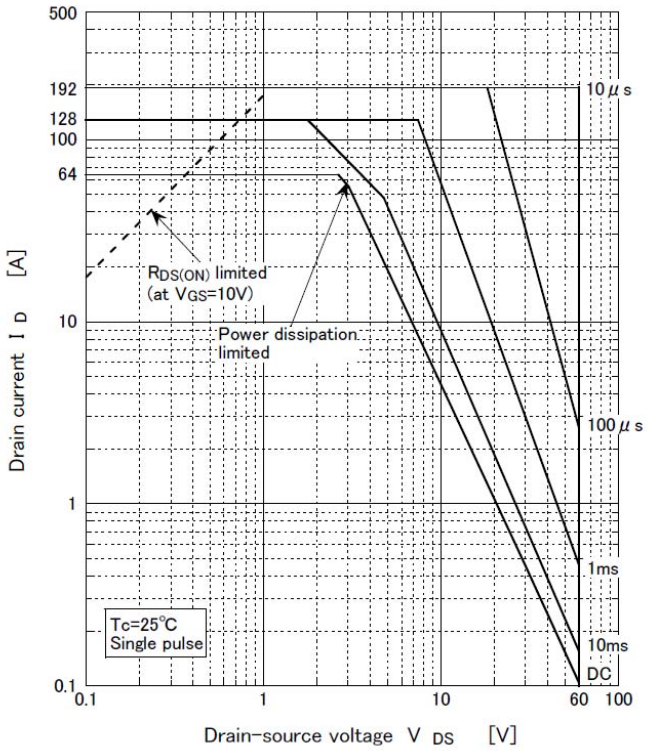
Static drain-source on-state resistance vs case temperature

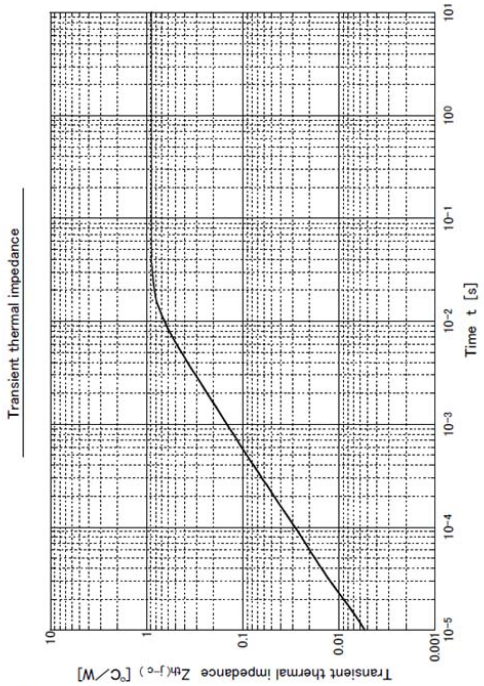


Gate threshold voltage
vs case temperature

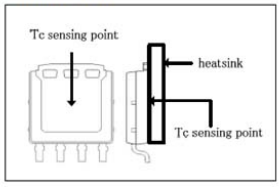


Safe operating area

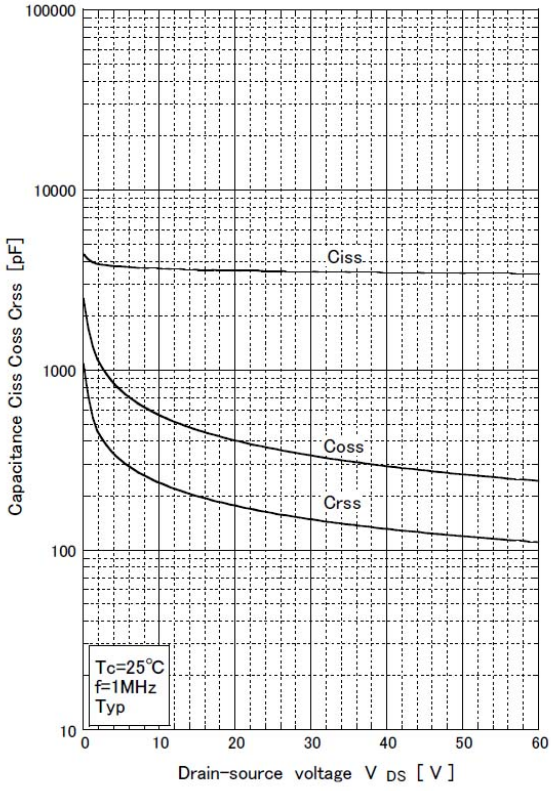




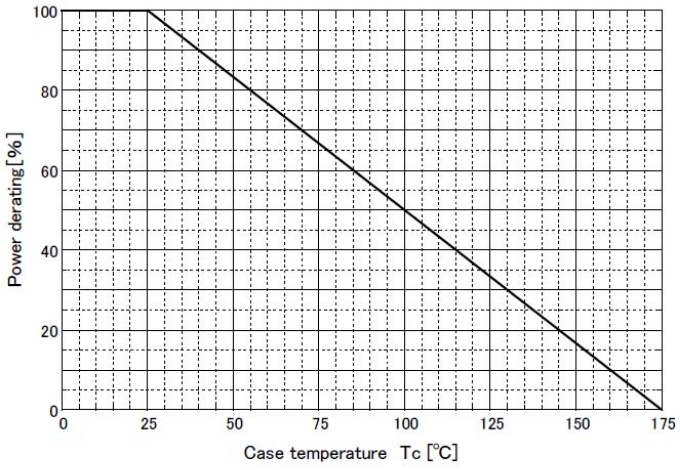
Tc sensing point



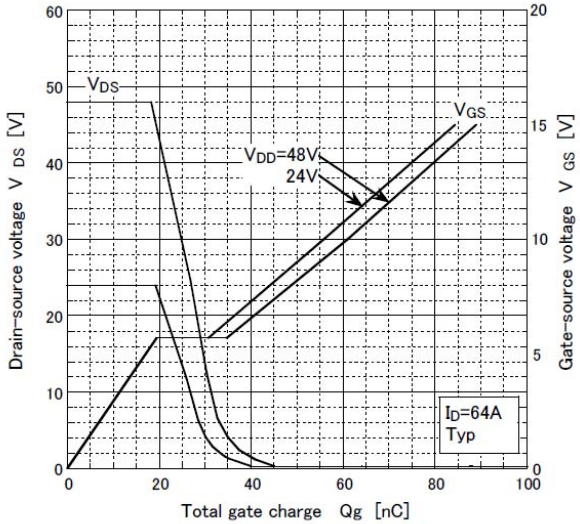
Capacitance characteristics



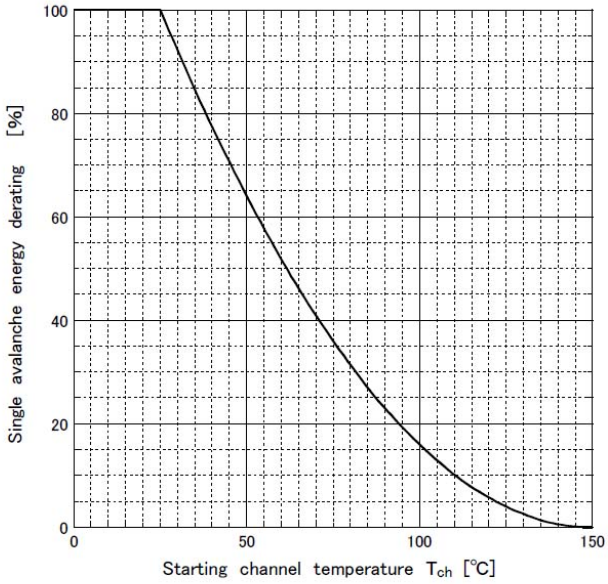
Power derating – case temperature



Gate charge characteristics



Single avalanche energy derating
vs channel temperature

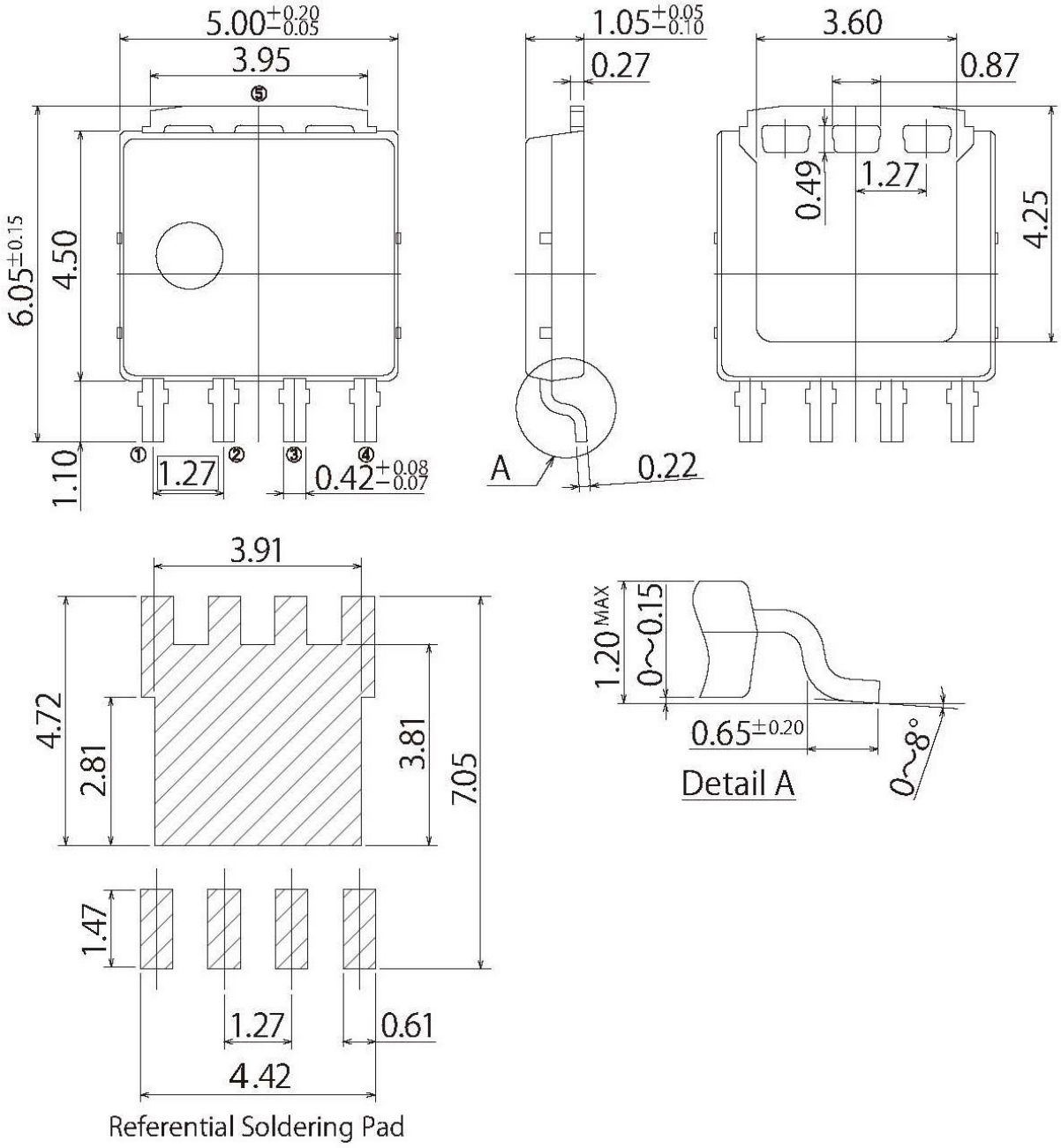


Outline Dimensions

unit:mm

G7

JEDEC Code	MO-235B similar
JEITA Code	–
House Name	LF



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

Notes

1. If you wish to use any such product, please be sure to refer to the specifications issued by Shindengen.
2. All products described or contained herein are designed with a quality level intended for use in standard applications requiring an ordinary level of reliability. If these products are to be used in equipment or devices for special or specific applications requiring an extremely high grade of quality or reliability in which failures or malfunctions of products may directly affect human life or health, a local Shindengen office must be contacted in advance to confirm that the intended use of the product is appropriate. Shindengen products are grouped into the following three applications according the quality grade.

   【Standard applications】
   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】
   Nuclear reactor control systems, aircraft, aerospace equipment, submarine repeaters, life support equipment and systems, etc.
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