

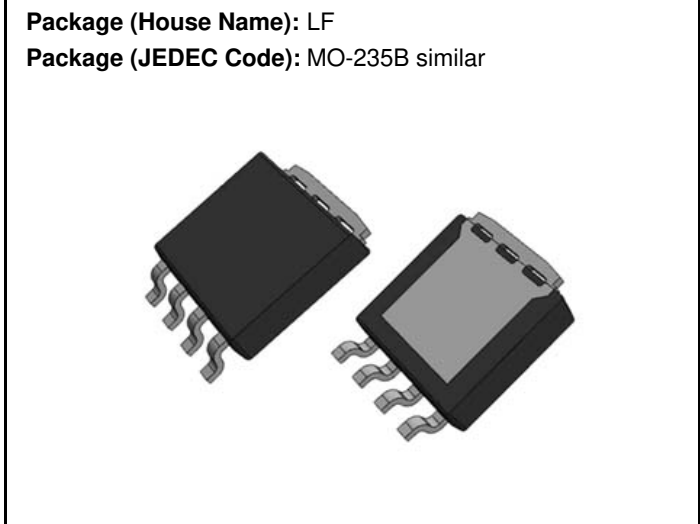
P24LF4QNK

Power MOSFETs
40V, 24A, N-channel

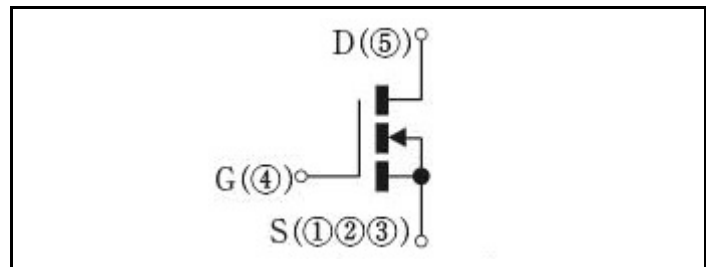
Feature

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

OUTLINE



Equivalent circuit



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

| Item | Symbol | Conditions | Ratings | Unit |
|--------------------------------|------------------|---|------------|------|
| Storage temperature | Tstg | | -55 to 175 | °C |
| Channel temperature | Tch | | -55 to 175 | °C |
| Drain-source voltage | V _{DSS} | | 40 | V |
| Gate-source voltage | V _{GSS} | | ±20 | V |
| Continuous drain current(DC) | I _D | | 24 | A |
| Continuous drain current(Peak) | I _{DP} | Pulse width 10µs, duty=1/100 | 72 | A |
| Total power dissipation | P _T | | 50 | W |
| Single avalanche current | I _{AS} | Starting T _{ch} =25°C T _{ch} ≤150°C | 13 | A |
| Single avalanche energy | E _{AS} | Starting T _{ch} =25°C T _{ch} ≤150°C | 18 | mJ |

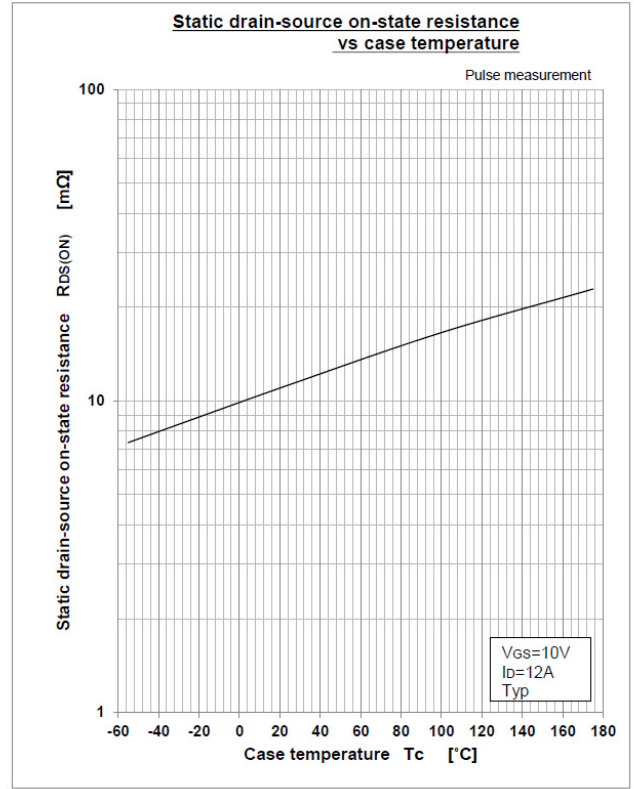
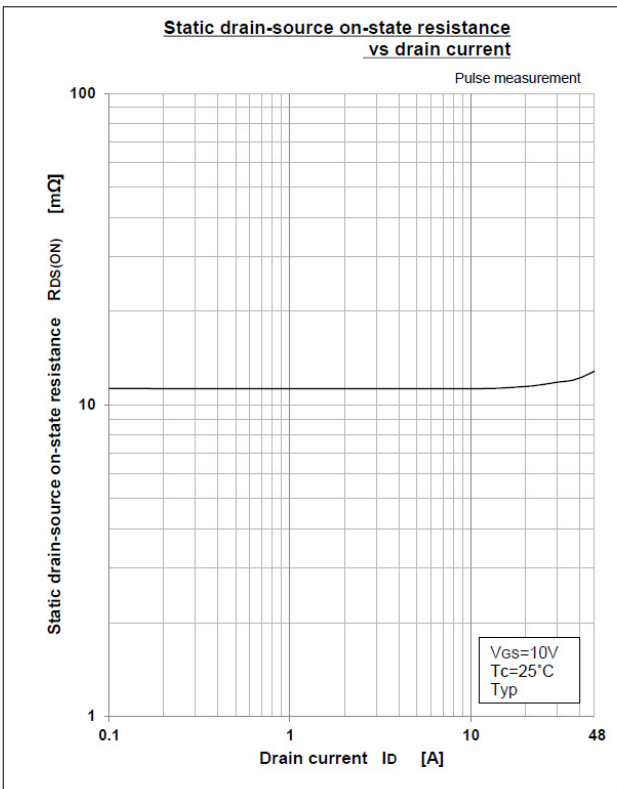
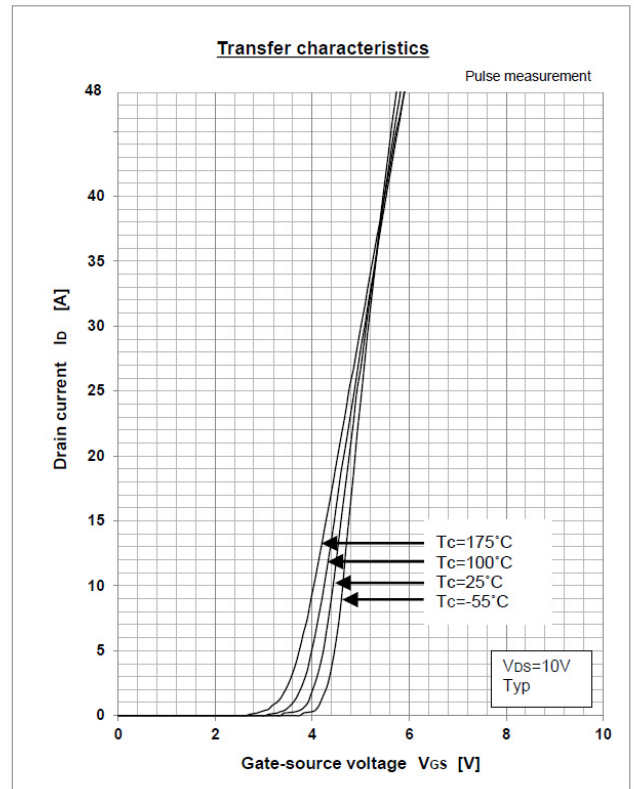
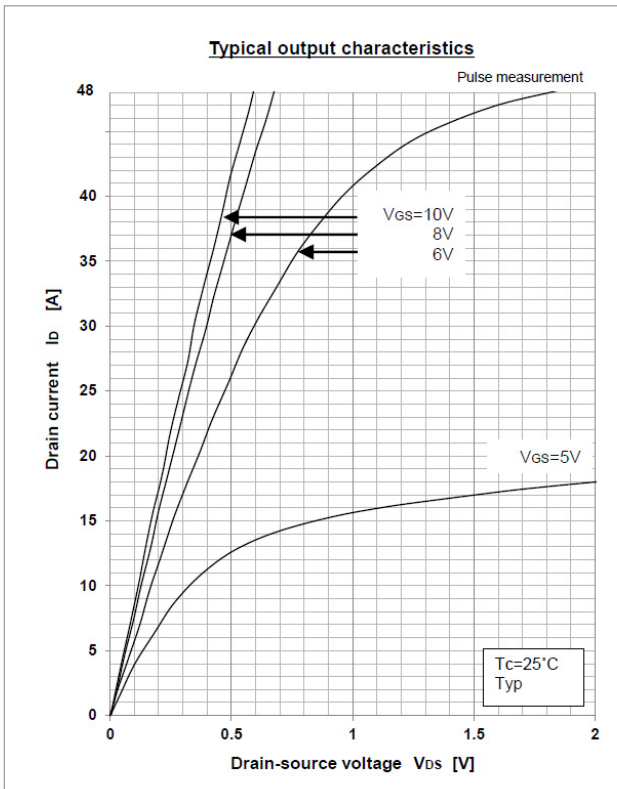
* : See the original Specifications

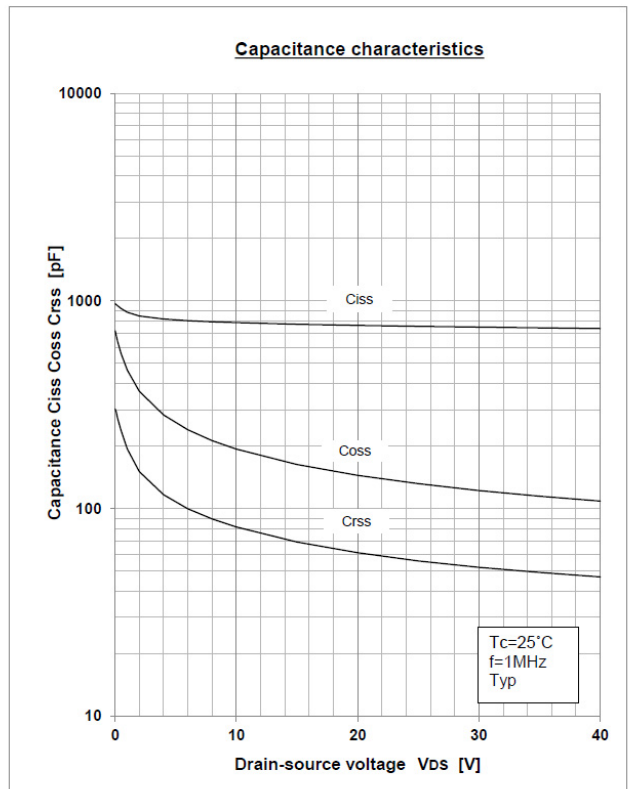
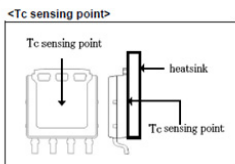
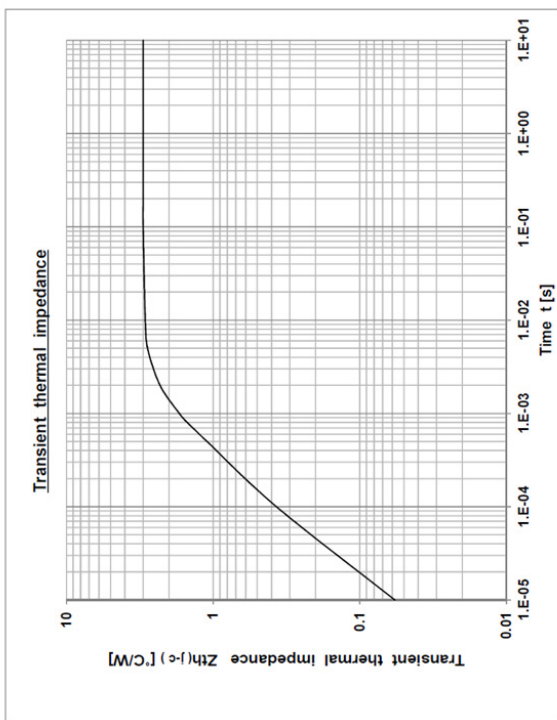
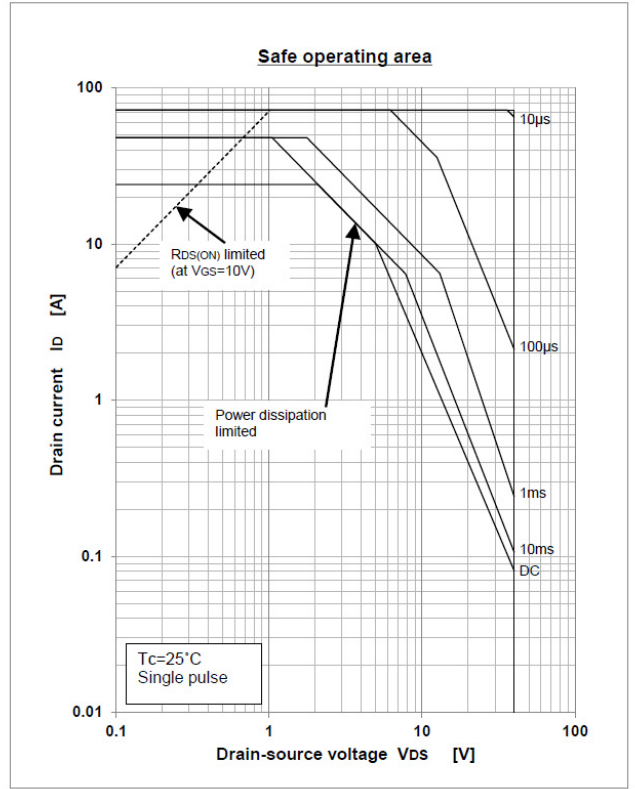
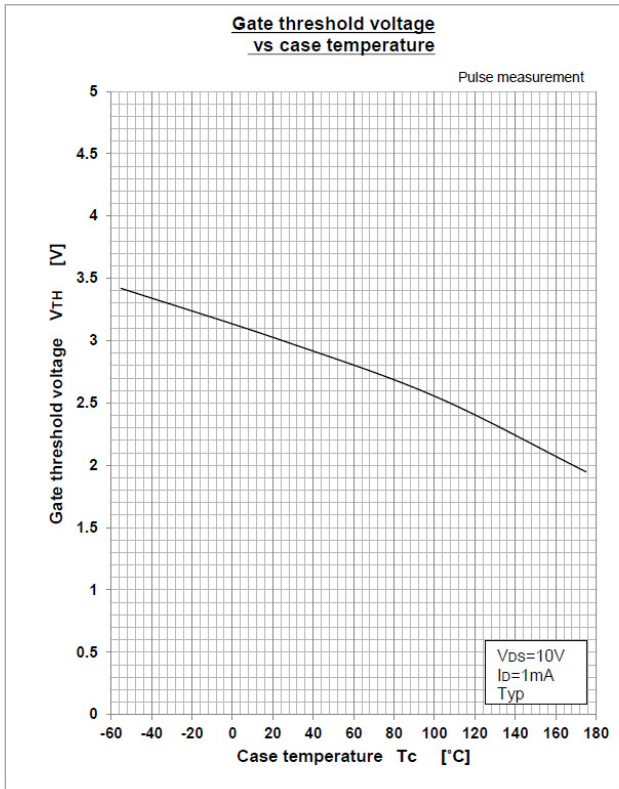
Electrical Characteristics (unless otherwise specified : Tc=25°C)

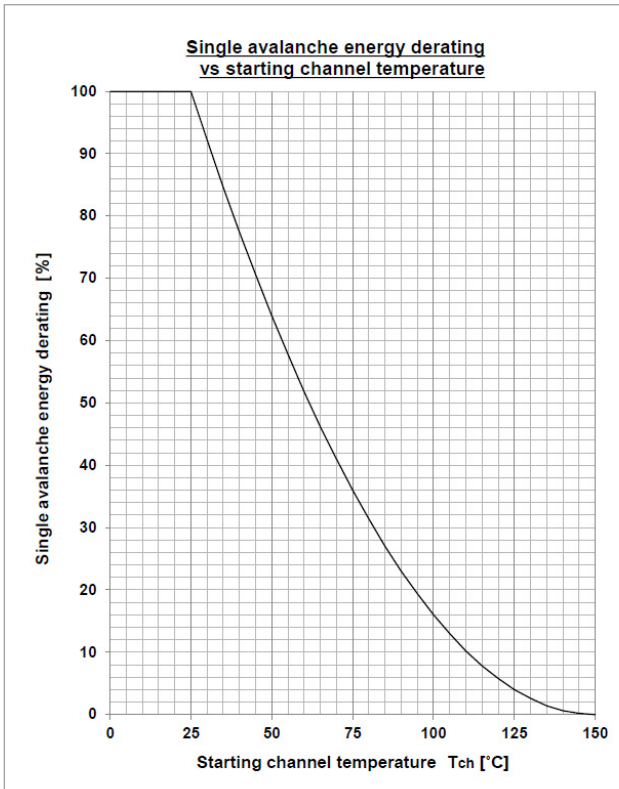
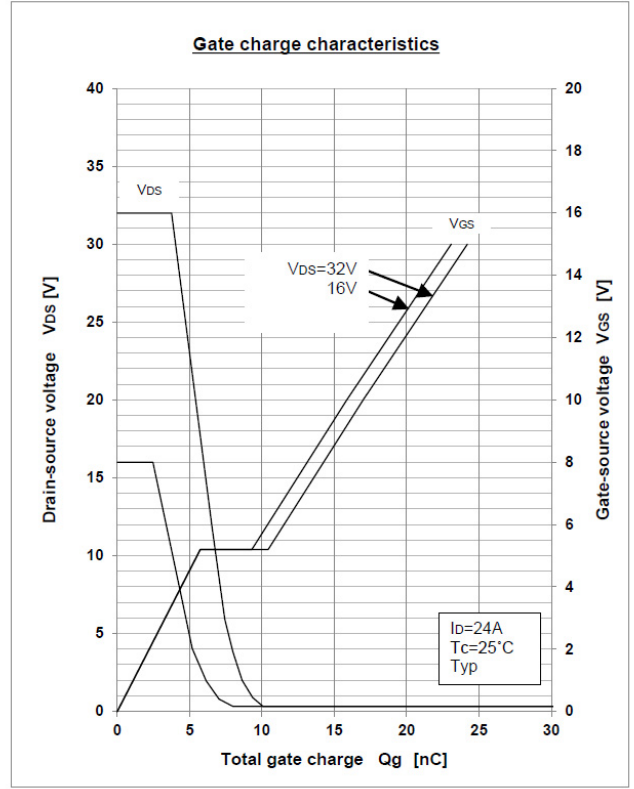
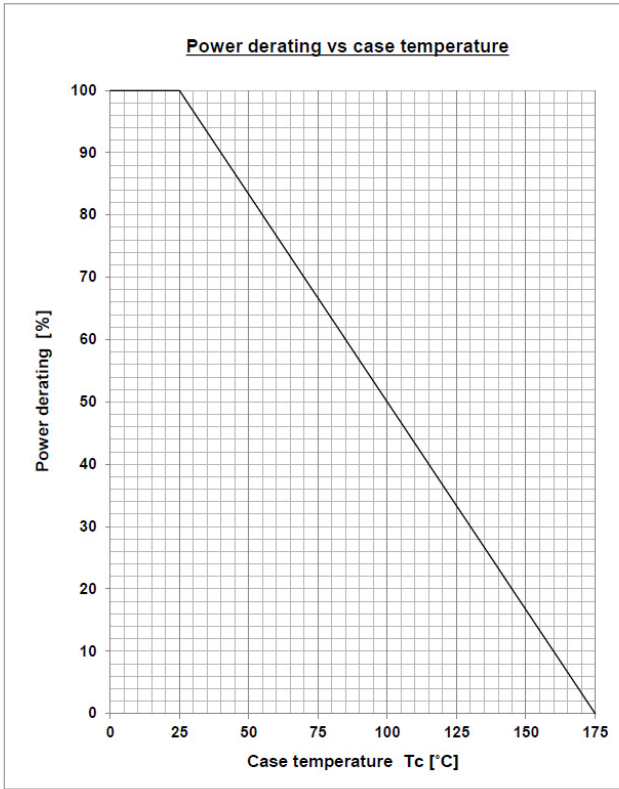
| Item | Symbol | Conditions | Ratings | | | Unit |
|---|---------------|---|---------|--------|--------|------|
| | | | MIN | TYP | MAX | |
| Drain-Source breakdown voltage | $V_{(BR)DSS}$ | ID=1mA, VGS=0V | 40 | | | V |
| Zero gate voltage drain current | I_{DSS} | VDS=40V, VGS=0V | | | 1 | μA |
| Gate-source leakage current | I_{GSS} | VGS=±20V, VDS=0V | | | ±0.1 | μA |
| Forward transconductance | g_{fs} | ID=12A, VDS=10V | 4 | | | S |
| Static drain-source on-state resistance | $R_{DS(ON)}$ | ID=12A, VGS=10V | | 0.0113 | 0.0141 | Ω |
| Gate threshold voltage | V_{th} | ID=1mA, VDS=10V | 2 | 3 | 4 | V |
| Source-drain diode forward voltage | V_{SD} | IS=24A, VGS=0V | | | 1.5 | V |
| Thermal resistance | $R_{th(j-c)}$ | Junction to case, with heatsink | | | 3 | °C/W |
| Total gate charge | Q_g | VDD=32V, VGS=10V, ID=24A | | 17 | | nC |
| Gate to source charge | Q_{gs} | VDD=32V, VGS=10V, ID=24A | | 5.8 | | nC |
| Gate to drain charge | Q_{gd} | VDD=32V, VGS=10V, ID=24A | | 4.9 | | nC |
| Input capacitance | C_{iss} | VDS=25V, VGS=0V, f=1MHz | | 756 | | pF |
| Reverse transfer capacitance | C_{rss} | VDS=25V, VGS=0V, f=1MHz | | 56 | | pF |
| Output capacitance | C_{oss} | VDS=25V, VGS=0V, f=1MHz | | 132 | | pF |
| Turn-on delay time | $t_{d(on)}$ | ID=12A, RL=1.67Ω, VDD=20V, Rg=0Ω, VGS(+)=10V, VGS(-)=0V | | 4 | | ns |
| Rise time | t_r | ID=12A, RL=1.67Ω, VDD=20V, Rg=0Ω, VGS(+)=10V, VGS(-)=0V | | 5.4 | | ns |
| Turn-off delay time | $t_{d(off)}$ | ID=12A, RL=1.67Ω, VDD=20V, Rg=0Ω, VGS(+)=10V, VGS(-)=0V | | 10 | | ns |
| Fall time | t_f | ID=12A, RL=1.67Ω, VDD=20V, Rg=0Ω, VGS(+)=10V, VGS(-)=0V | | 3.6 | | ns |
| Diode reverse recovery time | t_{rr} | IF=24A, VGS=0V, di/dt=100A/μs | | 33 | | ns |
| Diode reverse recovery charge | Q_{rr} | IF=24A, VGS=0V, di/dt=100A/μs | | 27 | | nC |

※ : See the original Specifications

CHARACTERISTIC DIAGRAMS

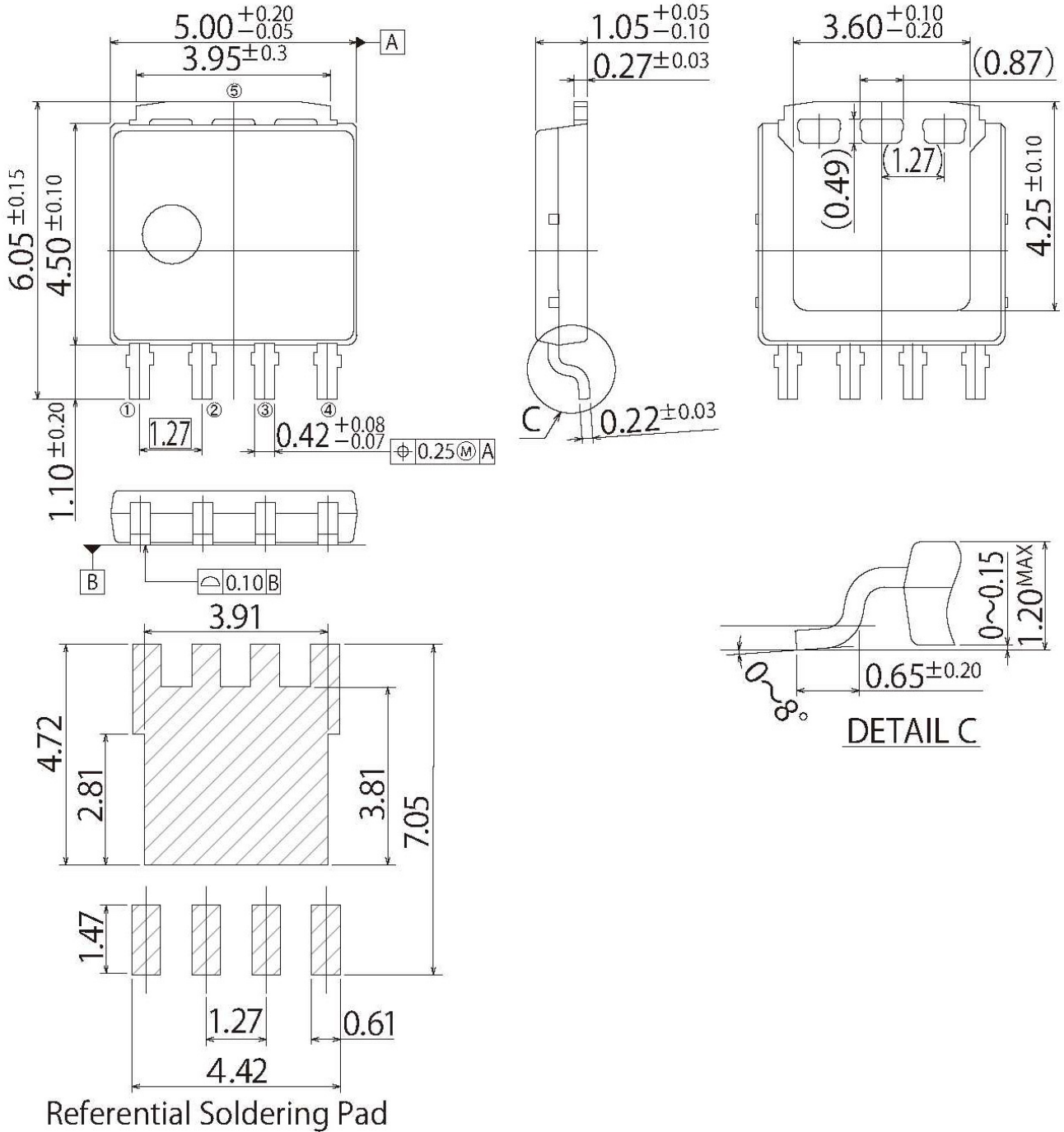






G7

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



Notes

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