

P72LF7R5SL

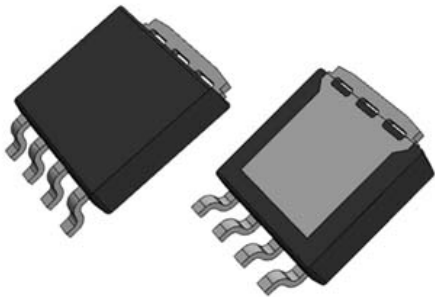
Power MOSFETs  
75V, 72A, N-channel

Feature

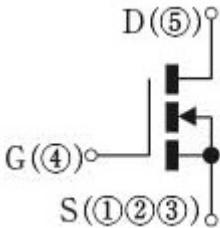
- N-channel
- Small SMD
- Large Current
- Low Ron
- 4.5V Gate Drive
- Low Capacitance
- Halogen free
- Pb free terminal
- RoHS:Yes

OUTLINE

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



Equivalent circuit



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

| Item                           | Symbol           | Conditions                   | Ratings    | Unit |
|--------------------------------|------------------|------------------------------|------------|------|
| Storage temperature            | Tstg             |                              | -55 to 175 | °C   |
| Channel tempertature           | Tch              |                              | -55 to 175 | °C   |
| Drain-source voltage           | V <sub>DSS</sub> |                              | 75         | V    |
| Gate-source voltage            | V <sub>GSS</sub> |                              | ±20        | V    |
| Continuous drain current(DC)   | I <sub>D</sub>   |                              | 72         | A    |
| Continuous drain current(Peak) | I <sub>DP</sub>  | Pulse width 10μs, duty=1/100 | 288        | A    |
| Total power dissipation        | P <sub>T</sub>   |                              | 217        | W    |
| Single avalanche current       | I <sub>AS</sub>  | Starting Tch=25°C Tch≤150°C  | 43         | A    |
| Single avalanche energy        | E <sub>AS</sub>  | Starting Tch=25°C Tch≤150°C  | 215        | mJ   |

※ :See the original Specifications

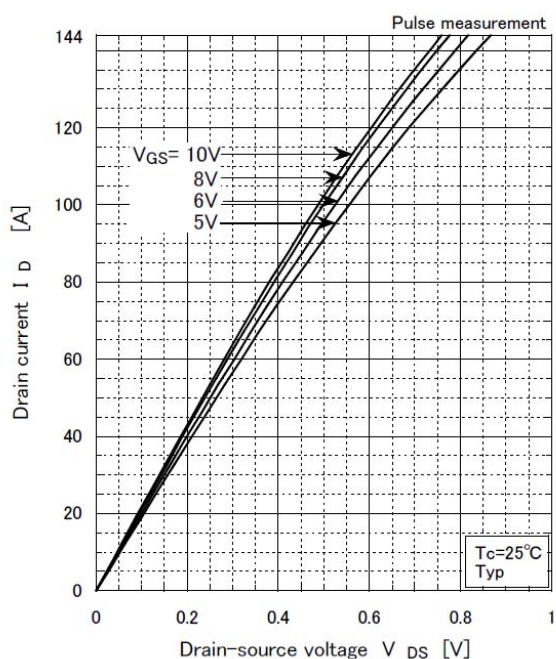
**Electrical Characteristics** (unless otherwise specified : Tc=25°C)

| Item                                    | Symbol        | Conditions                                                | Ratings |        |        | Unit |
|-----------------------------------------|---------------|-----------------------------------------------------------|---------|--------|--------|------|
|                                         |               |                                                           | MIN     | TYP    | MAX    |      |
| Drain-Source breakdown voltage          | $V_{(BR)DSS}$ | ID=1mA, VGS=0V                                            | 75      |        |        | V    |
| Zero gate voltage drain current         | $I_{DSS}$     | VDS=75V, VGS=0V                                           |         |        | 1      | μA   |
| Gate-source leakage current             | $I_{GSS}$     | VGS=±20V, VDS=0V                                          |         |        | ±0.1   | μA   |
| Forward transconductance                | $g_{fs}$      | ID=36A, VDS=10V                                           | 20      |        |        | S    |
| Static drain-source on-state resistance | $R_{DS(ON)}$  | ID=36A, VGS=10V                                           |         | 0.0046 | 0.0058 | Ω    |
| Static drain-source on-state resistance | $R_{DS(ON)}$  | ID=36A, VGS=4.5V                                          |         | 0.0055 | 0.0074 | Ω    |
| Gate threshold voltage                  | $V_{th}$      | ID=1mA, VDS=10V                                           | 1.5     | 2      | 2.5    | V    |
| Source-drain diode forward voltage      | $V_{SD}$      | IS=72A, VGS=0V                                            |         |        | 1.5    | V    |
| Thermal resistance                      | $R_{th(j-c)}$ | Junction to case, with heatsink                           |         |        | 0.69   | °C/W |
| Total gate charge                       | $Q_g$         | VDD=60V, VGS=10V, ID=72A                                  |         | 100    |        | nC   |
| Gate to source charge                   | $Q_{gs}$      | VDD=60V, VGS=10V, ID=72A                                  |         | 18     |        | nC   |
| Gate to drain charge                    | $Q_{gd}$      | VDD=60V, VGS=10V, ID=72A                                  |         | 31     |        | nC   |
| Input capacitance                       | $C_{iss}$     | VDS=25V, VGS=0V, f=1MHz                                   |         | 4870   |        | pF   |
| Reverse transfer capacitance            | $C_{rss}$     | VDS=25V, VGS=0V, f=1MHz                                   |         | 230    |        | pF   |
| Output capacitance                      | $C_{oss}$     | VDS=25V, VGS=0V, f=1MHz                                   |         | 439    |        | pF   |
| Turn-on delay time                      | $t_{d(on)}$   | ID=36A, RL=1.04Ω, VDD=37.5V, Rg=0Ω, VGS(+)=10V, VGS(-)=0V |         | 6      |        | ns   |
| Rise time                               | $t_r$         | ID=36A, RL=1.04Ω, VDD=37.5V, Rg=0Ω, VGS(+)=10V, VGS(-)=0V |         | 19     |        | ns   |
| Turn-off delay time                     | $t_{d(off)}$  | ID=36A, RL=1.04Ω, VDD=37.5V, Rg=0Ω, VGS(+)=10V, VGS(-)=0V |         | 99     |        | ns   |
| Fall time                               | $t_f$         | ID=36A, RL=1.04Ω, VDD=37.5V, Rg=0Ω, VGS(+)=10V, VGS(-)=0V |         | 32     |        | ns   |
| Diode reverse recovery time             | $t_{rr}$      | IF=72A, VGS=0V, di/dt=100A/μs                             |         | 49     |        | ns   |
| Diode reverse recovery charge           | $Q_{rr}$      | IF=72A, VGS=0V, di/dt=100A/μs                             |         | 83     |        | nC   |

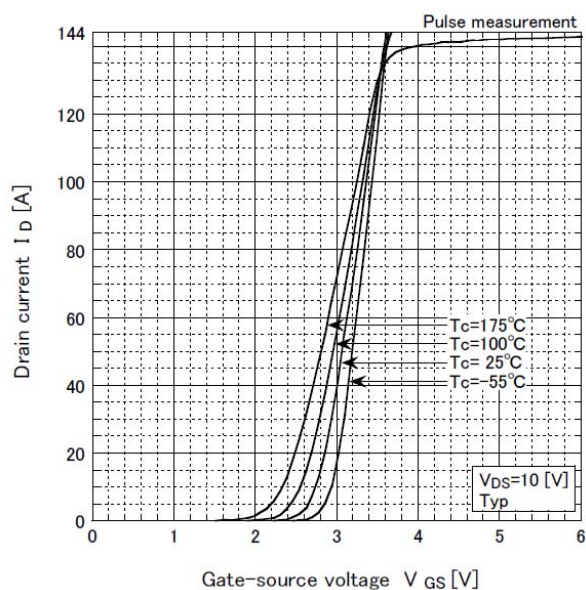
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## CHARACTERISTIC DIAGRAMS

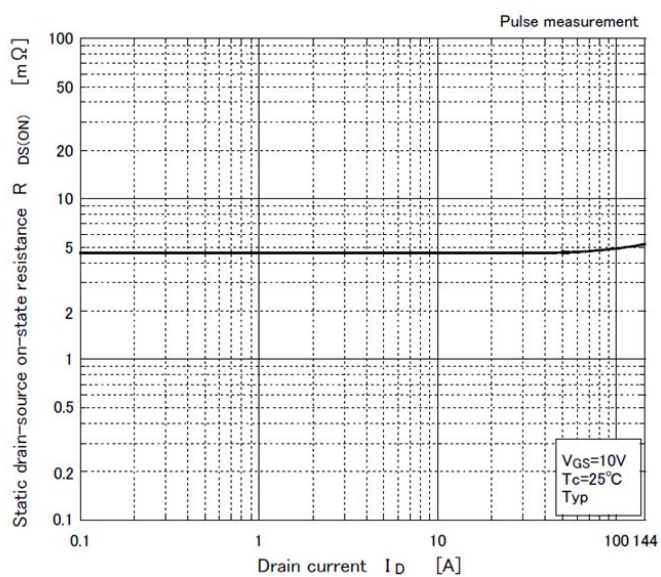
Typical output characteristics



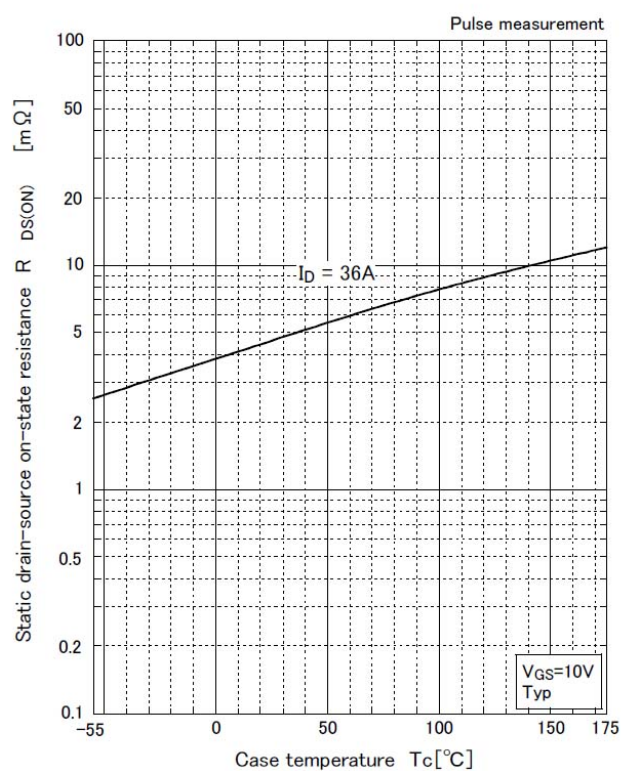
Transfer characteristics

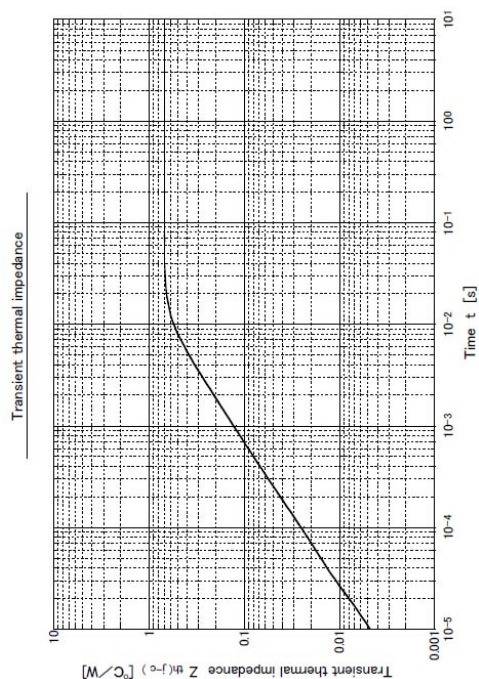
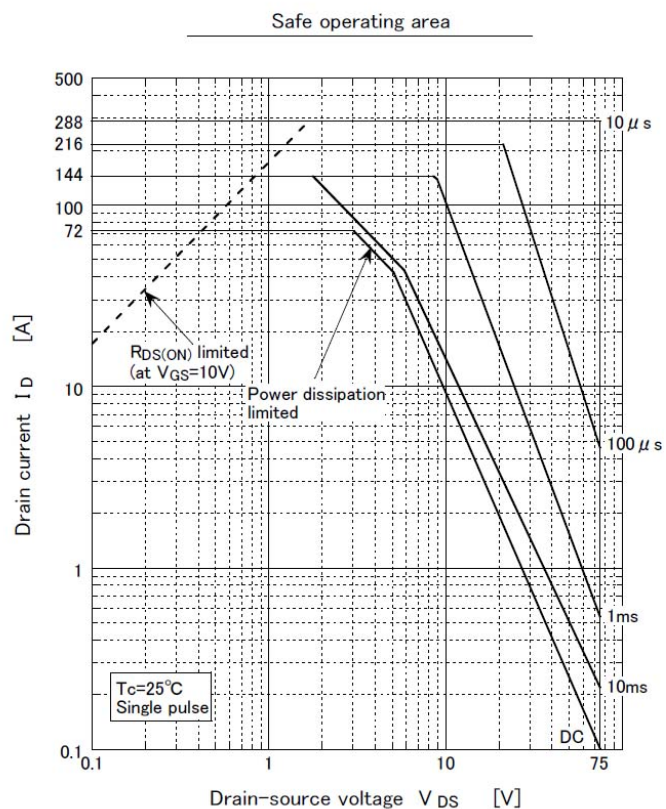
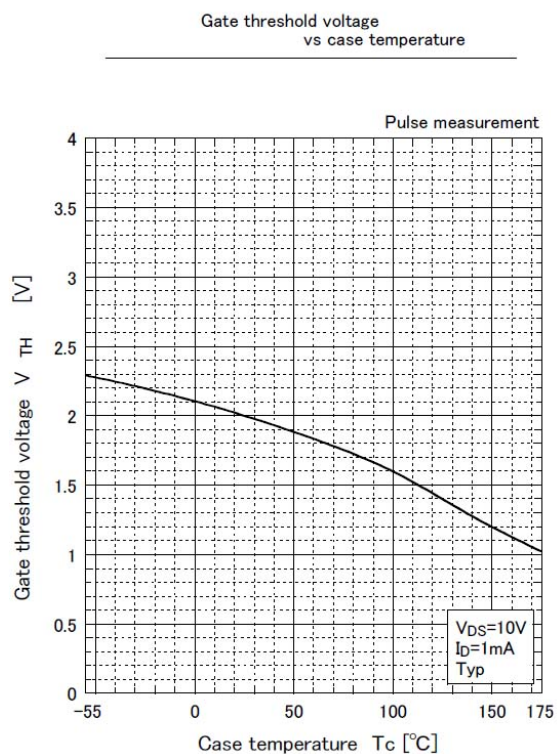


Static drain-source on-state resistance vs drain current

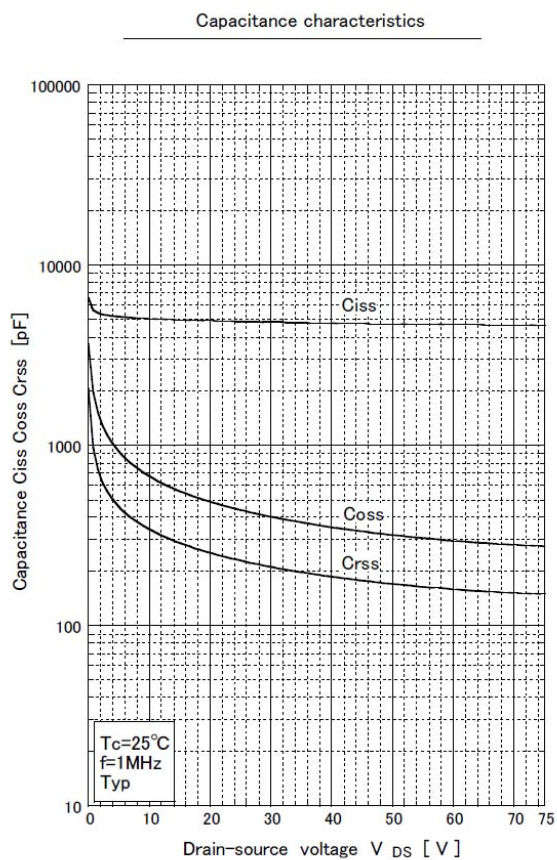
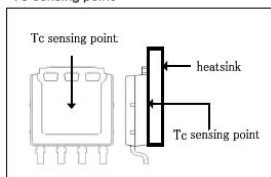


Static drain-source on-state resistance vs case temperature

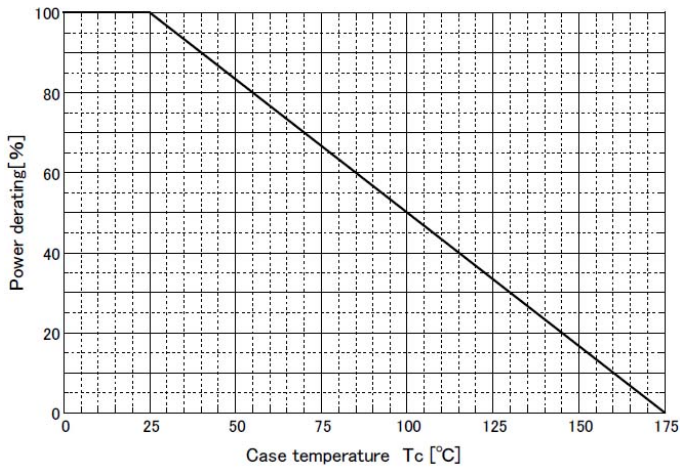




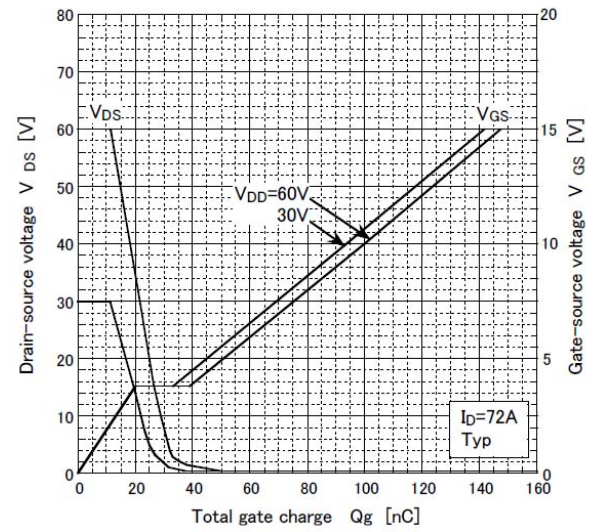
$T_c$  sensing point



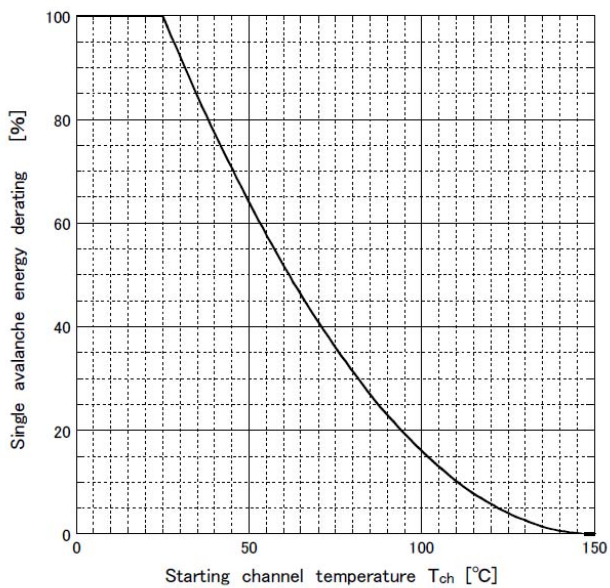
Power derating - case temperature



Gate charge characteristics

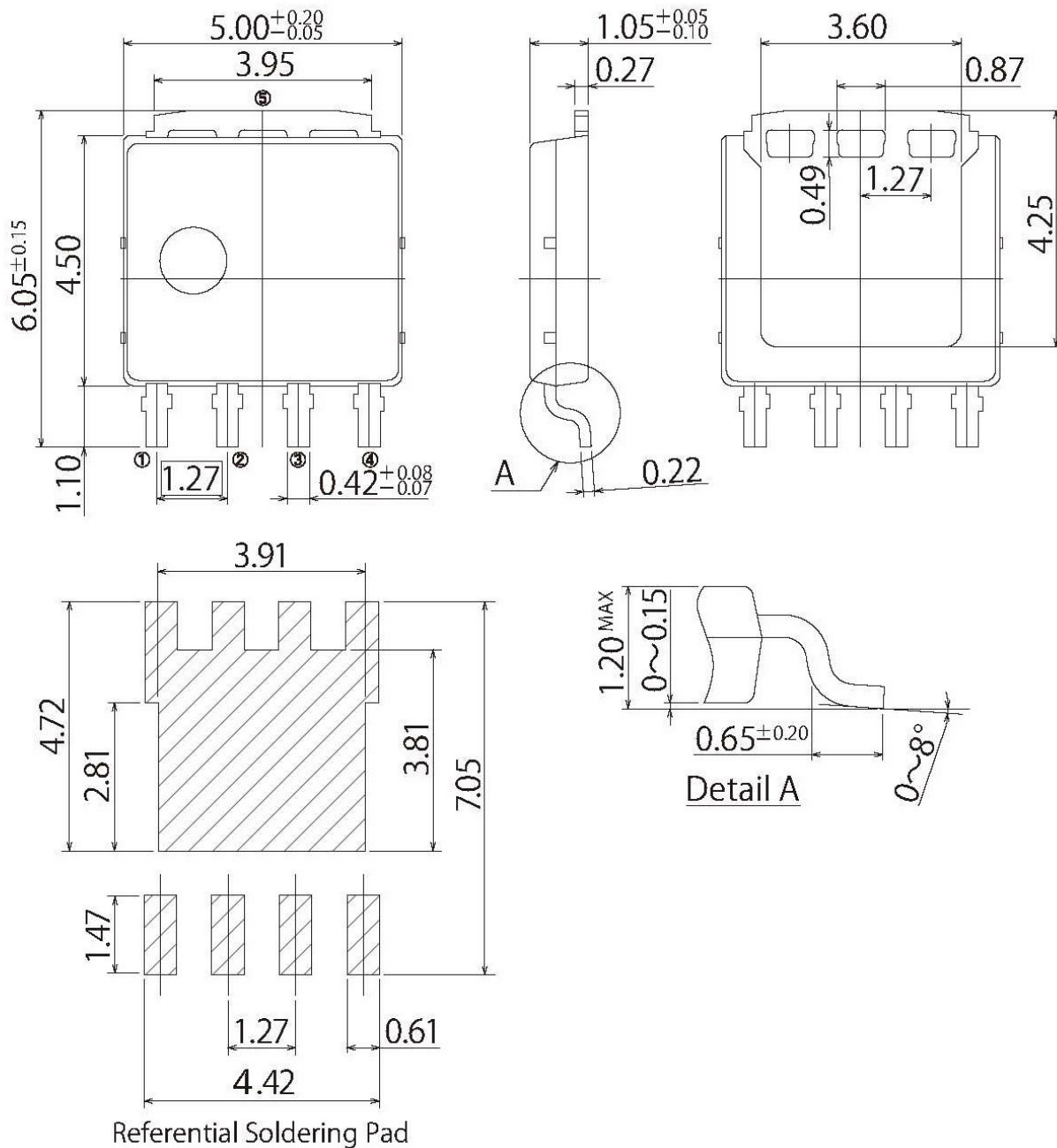


Single avalanche energy derating  
vs channel temperature



G7

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



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

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