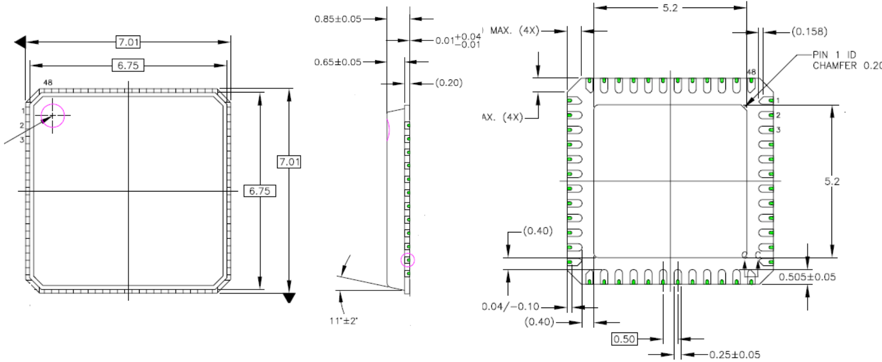
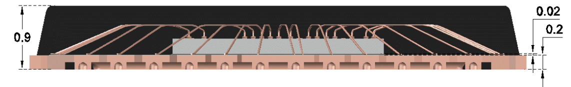
Package Thermal Datasheet
PG-VQFN-48-31

1. Package Dimensions



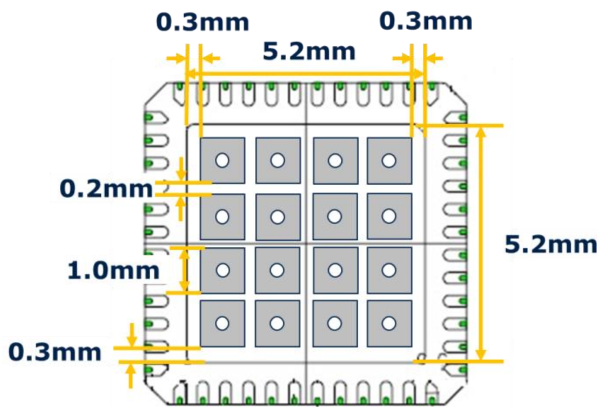
Package outline



Side view and 3D view (TLE986x)

2. PCB and Thermal Vias

Only JEDEC board is used for thermal assessment.



16 JEDEC thermal vias

3. Products in PG-VQFN-48-31

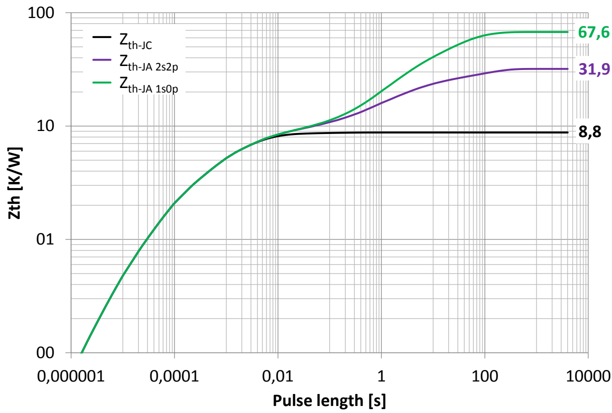
Sales Description	TLE986x
Product Group	Proteus
Interconnects	CU-5N 25µM
FE Technology	SPT9_65V_8
Chip Area & Thickness	3.158*2.978=9,405mm2 & 220µm
DMOS %	6%
Die Attach Material & Thickness	CRM 1079 S & 20µm
Leadframe Material & Thickness	C 19400 & 200µm
Mould Compound	EME G700 CD
Package Thickness	0.85mm

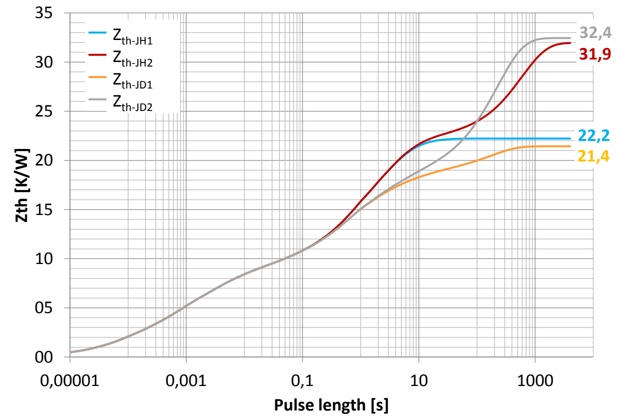
Internal use only

Package Thermal Datasheet
PG-VQFN-48-31

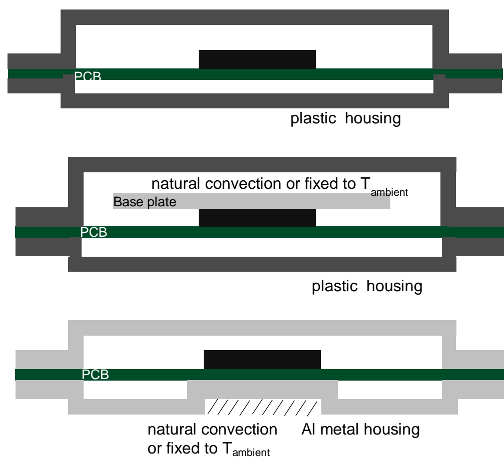
4. TLE986x

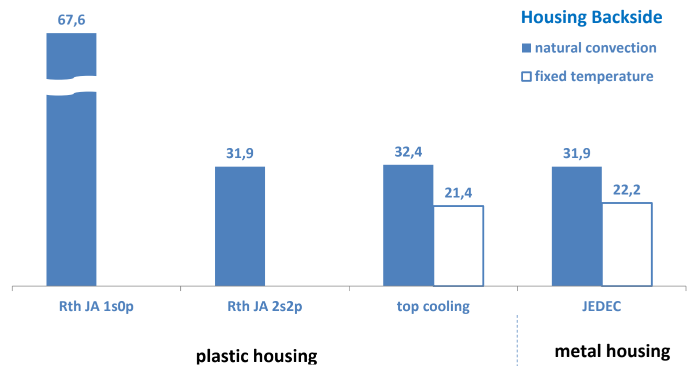
4.1 Thermal Impedance



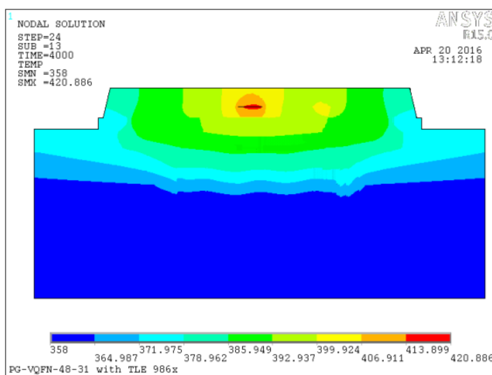


4.2 Influence of PCB Board

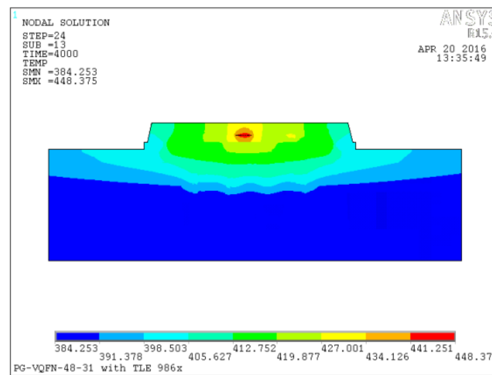




4.3 Temperature Distributions



JEDEC fixed temperature



JEDEC natural convection

Internal use only

5. PG-VQFN-48-31 Platform ($T_{ambient}$=85°C, JEDEC Board)

$R_{th\text{-}JC}$ (diepad fixed) vs. Chip Size

$R_{th\text{-}JC}$ [K/W]: 0 1 2 3 4 5 6 7 8

Chip Size [mm²]: 3 4 5 6 7 8 9 10 11 12 13 14 15 16

DMOS 100%
DMOS 50%
DMOS 20%

$R_{th\text{-}JA\ 2s2p}$ vs. Chip Size

$R_{th\text{-}JA\ 2s2p}$ [K/W]: 22 23 24 25 26 27 28 29 30 31

Chip Size [mm²]: 3 4 5 6 7 8 9 10 11 12 13 14 15 16

DMOS 100%
DMOS 50%
DMOS 20%

$R_{th\text{-}JA\ 1s0p}$ / footprint only vs. Chip Size

$R_{th\text{-}JA\ 1s0p}$ [K/W]: 63 64 65 66 67 68 69 70 71 72

Chip Size [mm²]: 3 4 5 6 7 8 9 10 11 12 13 14 15 16

DMOS 100%
DMOS 50%
DMOS 20%

$R_{th\text{-}JA\ 1s0p}$ / 1000mm² cooling area vs. Chip Size

$R_{th\text{-}JA\ 1s0p}$ [K/W]: 32 33 34 35 36 37 38 39 40 41

Chip Size [mm²]: 3 4 5 6 7 8 9 10 11 12 13 14 15 16

DMOS 100%
DMOS 50%
DMOS 20%

$R_{th\text{-}JH1}$ vs. Chip Size

$R_{th\text{-}JH1}$ [K/W]: 10 11 12 13 14 15 16 17 18 19

Chip Size [mm²]: 3 4 5 6 7 8 9 10 11 12 13 14 15 16

DMOS 100%
DMOS 50%
DMOS 20%

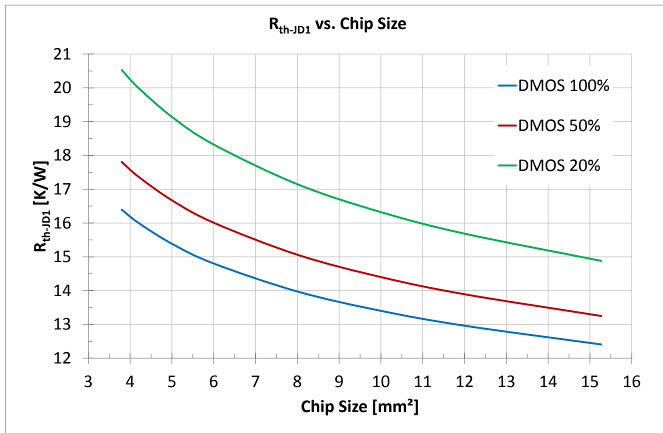
$R_{th\text{-}JH2}$ vs. Chip Size

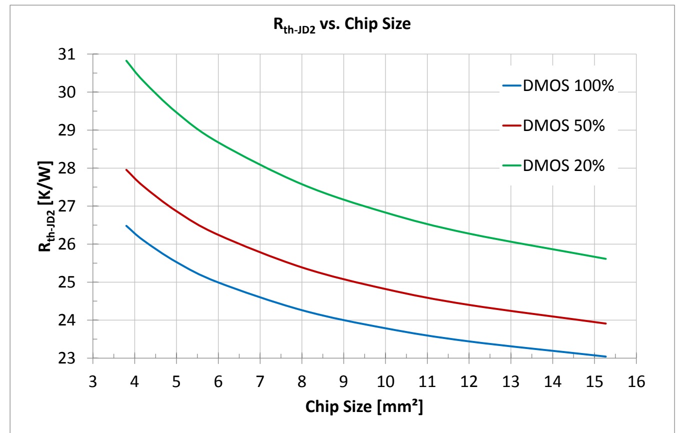
$R_{th\text{-}JH2}$ [K/W]: 19 20 21 22 23 24 25 26 27 28

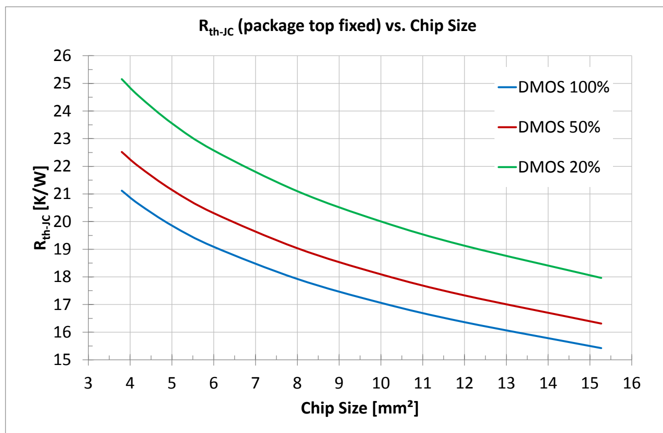
Chip Size [mm²]: 3 4 5 6 7 8 9 10 11 12 13 14 15 16

DMOS 100%
DMOS 50%
DMOS 20%

Internal use only







6. Thermal Reports List

Report Description	Report Number
TLE986x	ThP-VQFN-02
PG-VQFN platform	ThP-VQFN-01