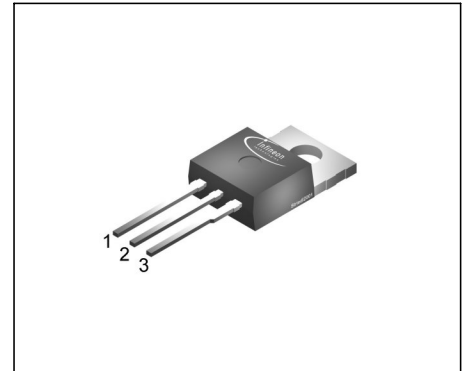


SIPMOS® Power Transistor

- N channel
- Enhancement mode
- Avalanche-rated
- Pb-free lead plating; RoHS compliant



| Pin 1 | Pin 2 | Pin 3 |
|-------|-------|-------|
| G | D | S |

| Type | V_{DS} | I_D | $R_{DS(on)}$ | Package | Pb-free |
|--------|----------|-------|--------------|-------------|---------|
| BUZ 32 | 200 V | 9.5 A | 0.4 Ω | PG-TO-220-3 | Yes |

Maximum Ratings

| Parameter | Symbol | Values | Unit |
|---|-------------|---------------|------------------|
| Continuous drain current $T_C = 29\text{ }^\circ\text{C}$ | I_D | 9.5 | A |
| Pulsed drain current $T_C = 25\text{ }^\circ\text{C}$ | I_{Dpuls} | 38 | |
| Avalanche current, limited by T_{jmax} | I_{AR} | 9.5 | |
| Avalanche energy, periodic limited by T_{jmax} | E_{AR} | 6.5 | mJ |
| Avalanche energy, single pulse $I_D = 9.5\text{ A}$, $V_{DD} = 50\text{ V}$, $R_{GS} = 25\text{ }\Omega$ $L = 2\text{ mH}$, $T_j = 25\text{ }^\circ\text{C}$ | E_{AS} | 120 | |
| Gate source voltage | V_{GS} | ± 20 | V |
| Power dissipation $T_C = 25\text{ }^\circ\text{C}$ | P_{tot} | 75 | W |
| Operating temperature | T_j | -55 ... + 150 | $^\circ\text{C}$ |
| Storage temperature | T_{stg} | -55 ... + 150 | |
| Thermal resistance, chip case | R_{thJC} | ≤ 1.67 | K/W |
| Thermal resistance, chip to ambient | R_{thJA} | 75 | |
| DIN humidity category, DIN 40 040 | | E | |
| IEC climatic category, DIN IEC 68-1 | | 55 / 150 / 56 | |

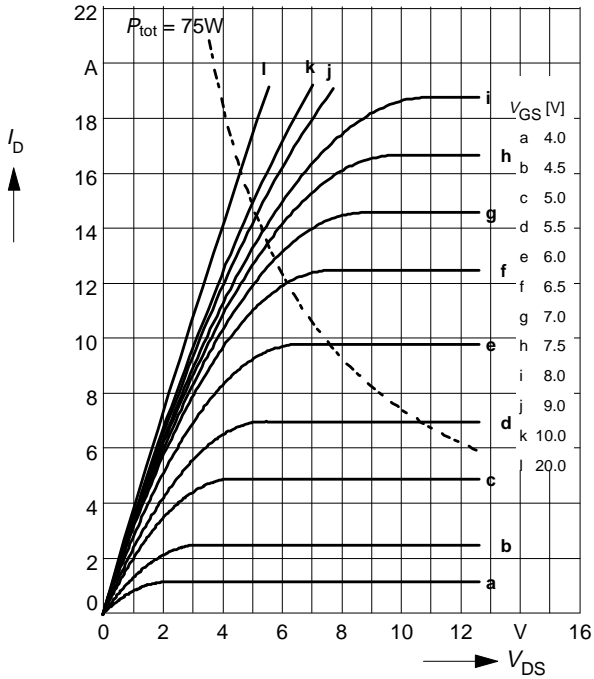
Electrical Characteristics, at $T_j = 25^\circ\text{C}$, unless otherwise specified

| Parameter | Symbol | Values | | | Unit |
|--|---------------|--------|-----------|----------|---------------|
| | | min. | typ. | max. | |
| Static Characteristics | | | | | |
| Drain- source breakdown voltage $V_{GS} = 0\text{ V}$, $I_D = 0.25\text{ mA}$, $T_j = 25^\circ\text{C}$ | $V_{(BR)DSS}$ | 200 | - | - | V |
| Gate threshold voltage $V_{GS} = V_{DS}$, $I_D = 1\text{ mA}$ | $V_{GS(th)}$ | 2.1 | 3 | 4 | |
| Zero gate voltage drain current $V_{DS} = 200\text{ V}$, $V_{GS} = 0\text{ V}$, $T_j = 25^\circ\text{C}$ $V_{DS} = 200\text{ V}$, $V_{GS} = 0\text{ V}$, $T_j = 125^\circ\text{C}$ | I_{DSS} | - | 0.1 10 | 1 100 | μA |
| Gate-source leakage current $V_{GS} = 20\text{ V}$, $V_{DS} = 0\text{ V}$ | I_{GSS} | - | 10 | 100 | nA |
| Drain-Source on-resistance $V_{GS} = 10\text{ V}$, $I_D = 6\text{ A}$ | $R_{DS(on)}$ | - | 0.3 | 0.4 | Ω |

Typ. output characteristics

$I_D = f(V_{DS})$

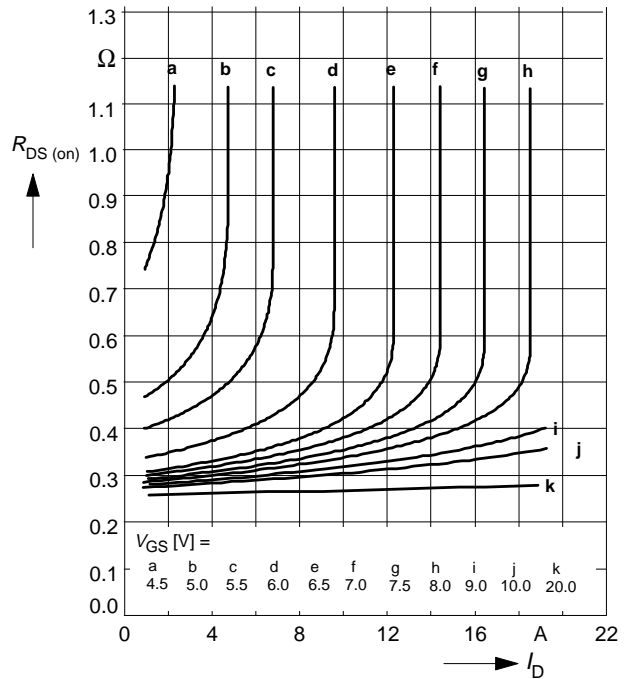
parameter: $t_p = 80 \mu s$



Typ. drain-source on-resistance

$R_{DS(on)} = f(I_D)$

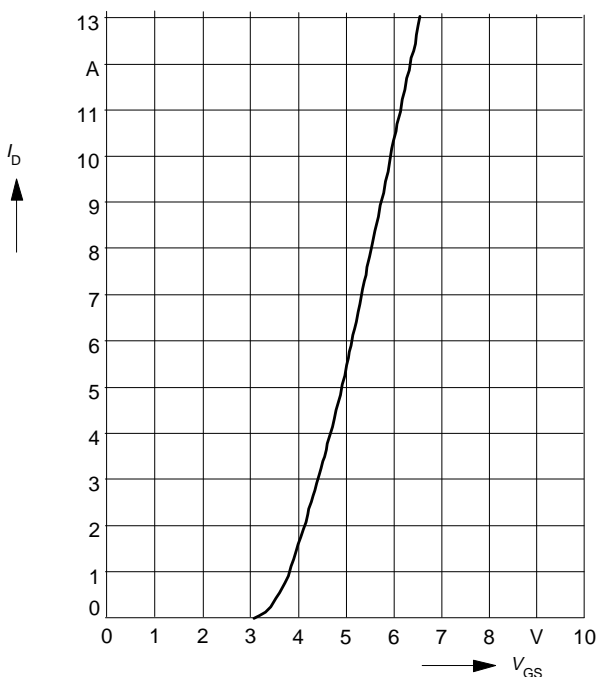
parameter: V_{GS}



Typ. transfer characteristics $I_D = f(V_{GS})$

parameter: $t_p = 80 \mu s$

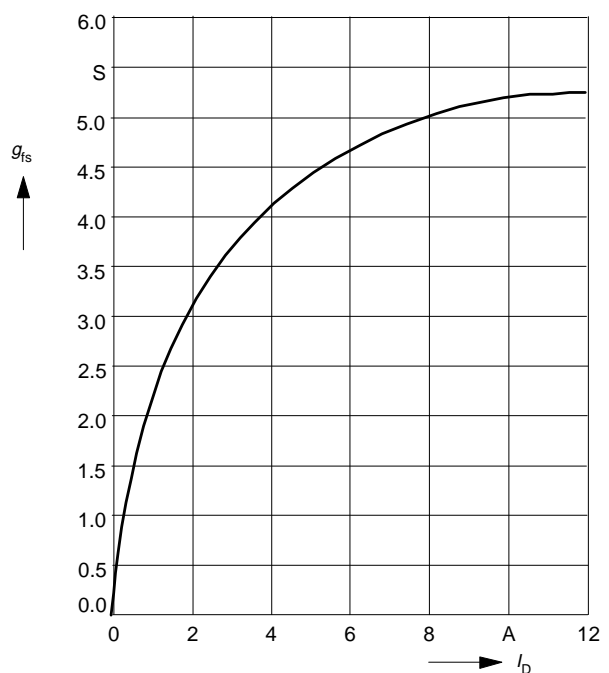
$V_{DS} \geq 2 \times I_D \times R_{DS(on)max}$



Typ. forward transconductance $g_{fs} = f(I_D)$

parameter: $t_p = 80 \mu s$,

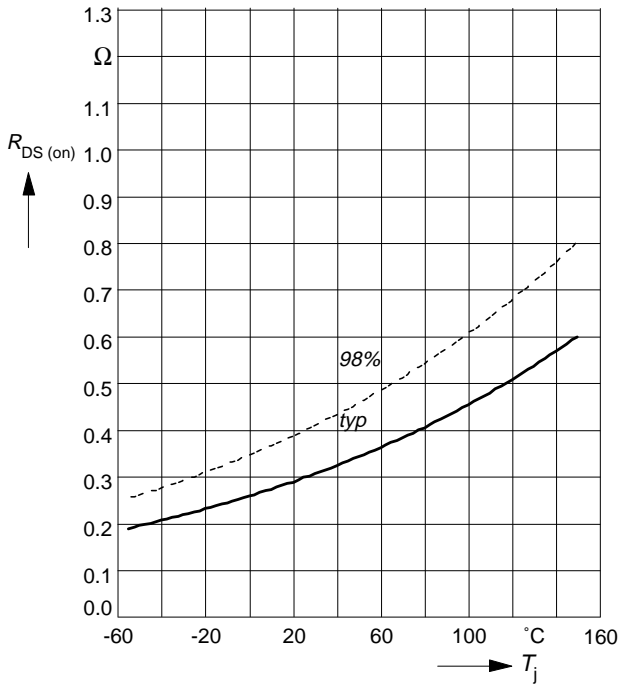
$V_{DS} \geq 2 \times I_D \times R_{DS(on)max}$



Drain-source on-resistance

$$R_{DS(on)} = f(T_j)$$

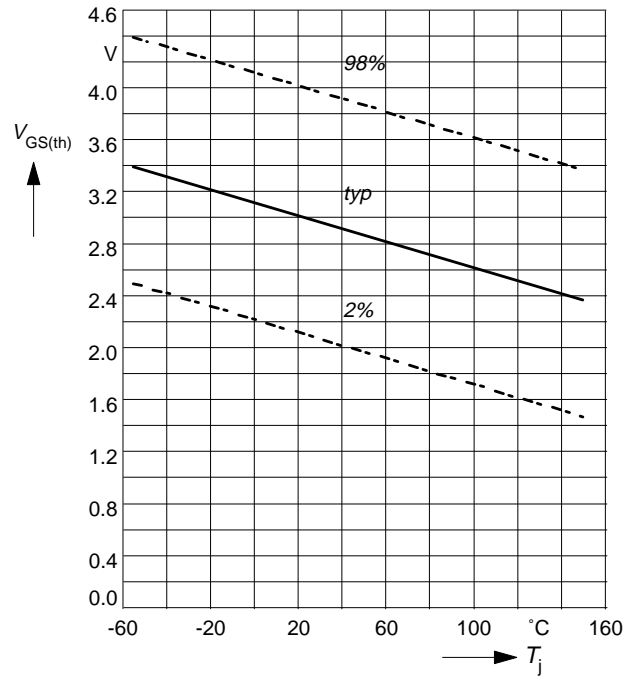
parameter: $I_D = 6\text{ A}$, $V_{GS} = 10\text{ V}$



Gate threshold voltage

$$V_{GS(th)} = f(T_j)$$

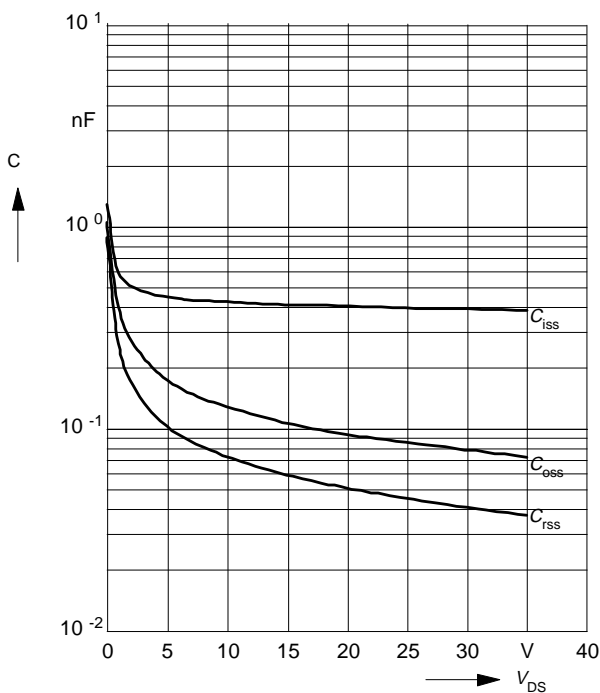
parameter: $V_{GS} = V_{DS}$, $I_D = 1\text{ mA}$



Typ. capacitances

$$C = f(V_{DS})$$

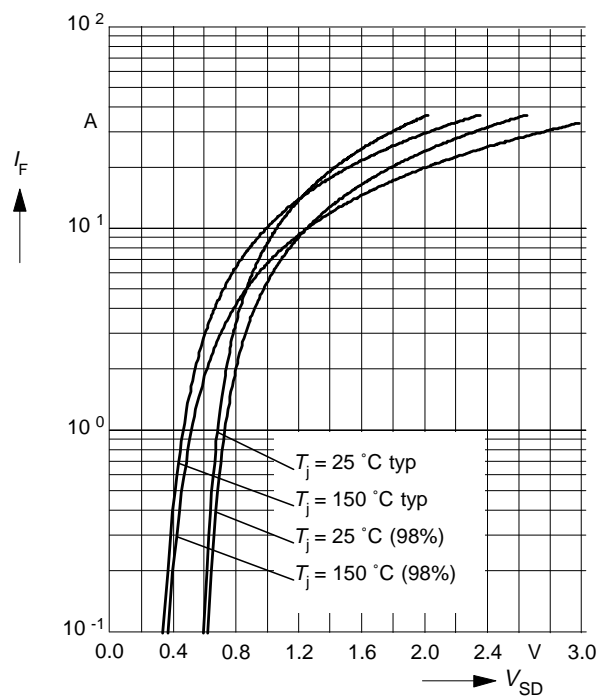
parameter: $V_{GS} = 0\text{ V}$, $f = 1\text{ MHz}$



Forward characteristics of reverse diode

$$I_F = f(V_{SD})$$

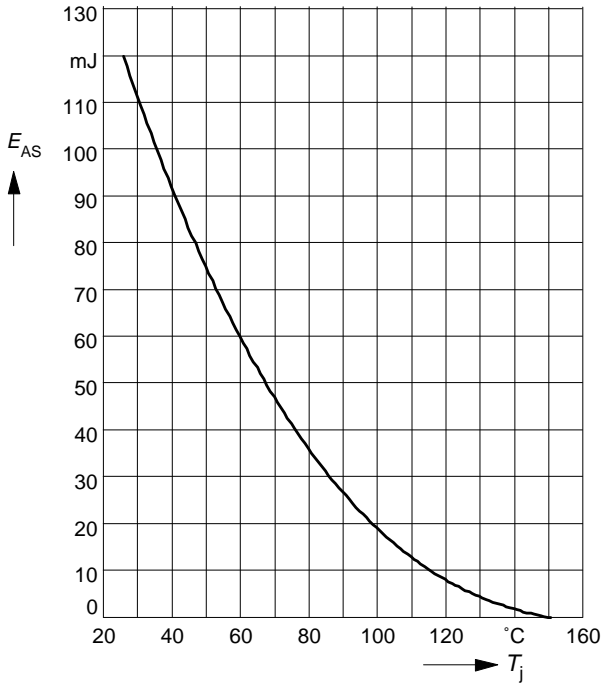
parameter: T_j , $t_p = 80\text{ }\mu\text{s}$



Avalanche energy $E_{AS} = f(T_j)$

parameter: $I_D = 9.5 \text{ A}$, $V_{DD} = 50 \text{ V}$

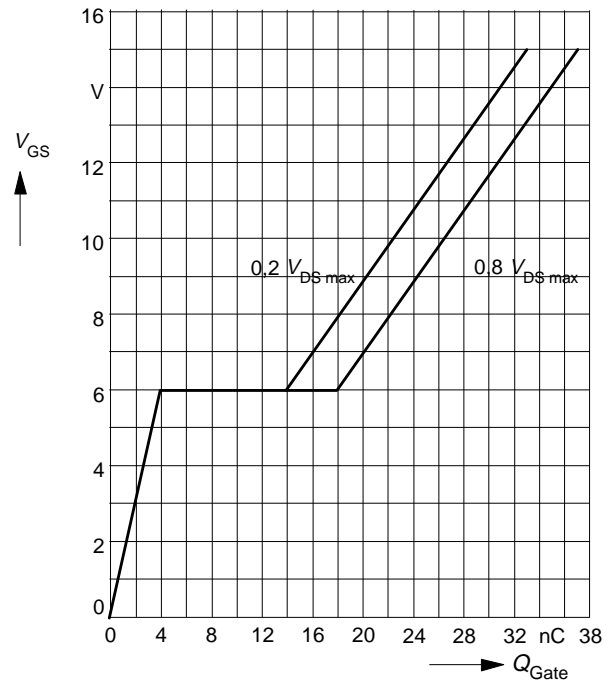
$R_{GS} = 25 \Omega$, $L = 2 \text{ mH}$



Typ. gate charge

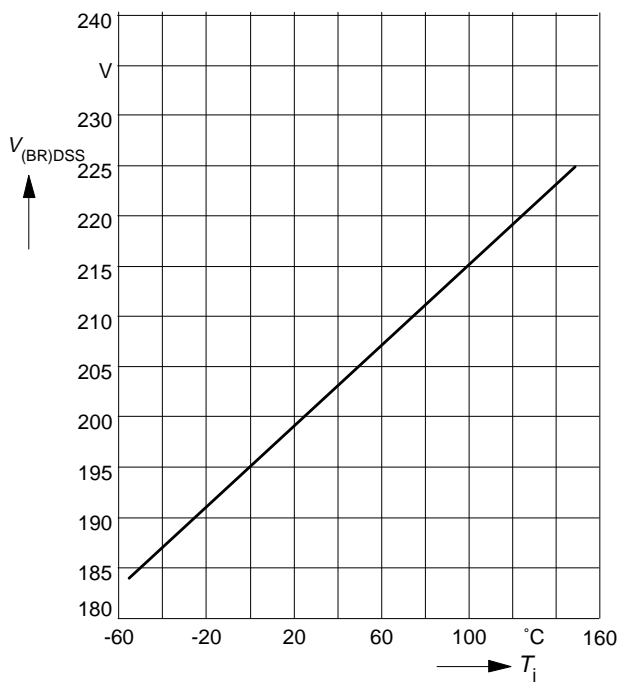
$V_{GS} = f(Q_{Gate})$

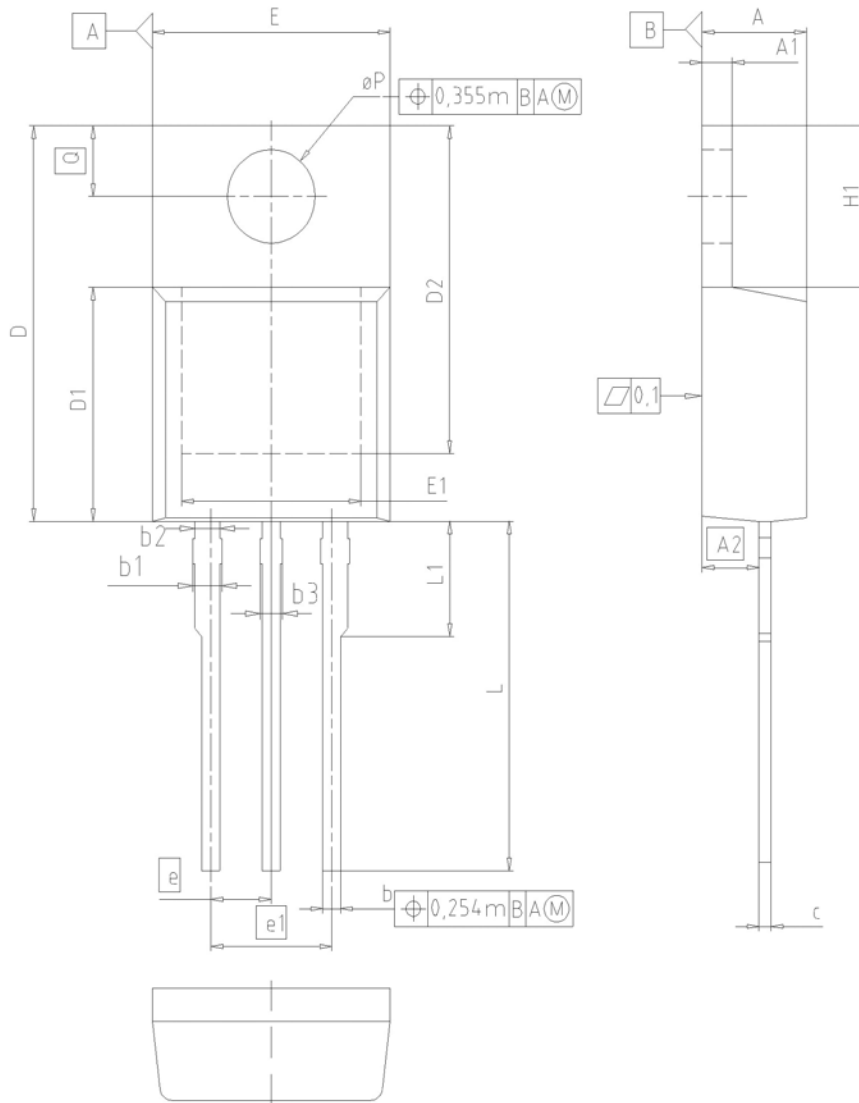
parameter: $I_{D \text{ puls}} = 14 \text{ A}$



Drain-source breakdown voltage

$V_{(BR)DSS} = f(T_j)$





| DIM | MILLIMETERS | | INCHES | |
|----------|-------------|-------|--------|-------|
| | MIN | MAX | MIN | MAX |
| A | 4.30 | 4.57 | 0.169 | 0.180 |
| A1 | 1.17 | 1.40 | 0.046 | 0.055 |
| A2 | 2.15 | 2.72 | 0.085 | 0.107 |
| b | 0.65 | 0.86 | 0.026 | 0.034 |
| b1 | 0.95 | 1.40 | 0.037 | 0.055 |
| b2 | 0.95 | 1.15 | 0.037 | 0.045 |
| b3 | 0.65 | 1.15 | 0.026 | 0.045 |
| c | 0.33 | 0.60 | 0.013 | 0.024 |
| D | 14.81 | 15.95 | 0.583 | 0.628 |
| D1 | 8.51 | 9.45 | 0.335 | 0.372 |
| D2 | 12.19 | 13.10 | 0.480 | 0.516 |
| E | 9.70 | 10.36 | 0.382 | 0.408 |
| E1 | 6.50 | 8.60 | 0.256 | 0.339 |
| e | 2.54 | | 0.100 | |
| e1 | 5.08 | | 0.200 | |
| N | 3 | | 3 | |
| H1 | 5.90 | 6.90 | 0.232 | 0.272 |
| L | 13.00 | 14.00 | 0.512 | 0.551 |
| L1 | - | 4.80 | - | 0.189 |
| ϕP | 3.60 | 3.89 | 0.142 | 0.153 |
| Q | 2.60 | 3.00 | 0.102 | 0.118 |

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SCALE

EUROPEAN PROJECTION

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