## Small-signal/small-power N-channel

<table>
<thead>
<tr>
<th>Voltage [V]</th>
<th>SOT-223</th>
<th>TSOP-6</th>
<th>SOT-89</th>
<th>SC59</th>
<th>SOT-23</th>
<th>SOT-323</th>
<th>SOT-363</th>
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<tbody>
<tr>
<td>20V</td>
<td>BSM232N 4)</td>
<td>BSM226N 4)</td>
<td>BSM142N 4)</td>
<td>BSM146N 4)</td>
<td>BSM149N 4)</td>
<td>BSM235N 4)</td>
<td>BSM238N 4)</td>
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<tr>
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<td>20 mΩ, 3.7 A, SLL</td>
<td>20 mΩ, 3.8 A, SLL</td>
<td>20 mΩ, 4.3 A, SLL</td>
<td>20 mΩ, 4.4 A, SLL</td>
<td>20 mΩ, 4.4 A, SLL</td>
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<td>20 mΩ, 4.4 A, SLL</td>
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<td>BSM5020N 4)</td>
<td>BSM5120N 4)</td>
<td>BSM5220N 4)</td>
<td>BSM5320N 4)</td>
<td>BSM5420N 4)</td>
<td>BSM5520N 4)</td>
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<tr>
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<td>45 mΩ, 3.6 A, SLL</td>
<td>50 mΩ, 3.6 A, SLL</td>
<td>60 mΩ, 4.1 A, SLL</td>
<td>70 mΩ, 4.2 A, ULL</td>
<td>80 mΩ, 4.2 A, ULL</td>
<td>80 mΩ, 4.2 A, ULL</td>
<td>90 mΩ, 4.2 A, ULL</td>
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<td>BSM080N 4)</td>
<td>BSM084N 4)</td>
<td>BSM088N 4)</td>
<td>BSM092N 4)</td>
<td>BSM096N 4)</td>
<td>BSM100N 4)</td>
<td>BSM104N 4)</td>
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<td>60 mΩ, 3.5 A, SLL</td>
<td>60 mΩ, 3.5 A, SLL</td>
<td>60 mΩ, 3.5 A, SLL</td>
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<td>BSZ216N 4)</td>
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<td>BSZ220N 4)</td>
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<td>BSZ224N 4)</td>
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<td>60 mΩ, 3.5 A, SLL</td>
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<td>BSZ242N 4)</td>
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<td>BSZ258N 4)</td>
<td>BSZ260N 4)</td>
<td>BSZ262N 4)</td>
<td>BSZ264N 4)</td>
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<td>60 mΩ, 3.5 A, SLL</td>
<td>60 mΩ, 3.5 A, SLL</td>
<td>60 mΩ, 3.5 A, SLL</td>
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<td>60 mΩ, 3.5 A, SLL</td>
<td>60 mΩ, 3.5 A, SLL</td>
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</table>

### Product portfolio

www.infineon.com/smallsignal

1) not qualified to Automotive AEC-Q101  
2) \( R_{DS(on)} \) specified at 1.8 V  
3) \( R_{DS(on)} \) specified at 2.5 V  
4) \( R_{DS(on)} \) specified at 4.5 V  
5) \( R_{DS(on)} \) specified at 0 V  
6) \( R_{DS(on)} \) specified at 0 V  

For more details on the product, click on the part number, and www.infineon.com or contact our product support.
# Product Portfolio

## Small Signal/Small Power P-Channel P-Channel MOSFETs

<table>
<thead>
<tr>
<th>Voltage [V]</th>
<th>SOT-223</th>
<th>TSOP-6</th>
<th>SOT-89</th>
<th>SC59</th>
<th>SOT-23</th>
<th>SOT-323</th>
<th>SOT-363</th>
</tr>
</thead>
<tbody>
<tr>
<td>-250 V</td>
<td>BSP317P*</td>
<td>13 P</td>
<td>.043 A, LL</td>
<td>BS512P*</td>
<td>13 D, .014 A, LL</td>
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<td>BSP22P</td>
<td>15 D, 0.26 A, LL</td>
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<td>-150 V</td>
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<td>4 D, .129 A, LL</td>
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<tr>
<td>-100 V</td>
<td>SPF1D10LM*</td>
<td>190 mΩ, .39 A, LL</td>
<td>BS521P</td>
<td>2.2 D, .036 A, LL</td>
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<td>BSF22P</td>
<td>10 D, .1 A, LL</td>
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<td>SPF2D10LM*</td>
<td>105 D, .15 A, LL</td>
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<td>BSF22P</td>
<td>10 D, .1 A, LL</td>
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<td>-60 V</td>
<td>SPF1DP9NNM*</td>
<td>45 mΩ, .37 A, NL</td>
<td>BSF35P</td>
<td>1.3 D, .052 A, LL</td>
<td>IS217EP6LM*</td>
<td>2.2 D, .03 A, LL</td>
<td>BS5APK*</td>
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<td>SPF1DP9NNM*</td>
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<td>BSF1LP*</td>
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<tr>
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<td>BSF1LP*</td>
<td>130 mΩ, .2 A, NL</td>
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<td>BSF2DP9NNM*</td>
<td>260 mΩ, .19 A, NL</td>
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<td>-20 V</td>
<td>IRF5803*</td>
<td>N: 112 mΩ, .3 A, NL</td>
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<td>BSL207SP</td>
<td>41 mΩ, .6 A, SLL</td>
<td>IRLML2246*</td>
<td>55 mΩ, .4 A, SLL</td>
<td>BSS209PW*</td>
<td>900 mΩ, .58 A, SLL</td>
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<td>IRFTS9342*</td>
<td>40 mΩ, .5 A, NL</td>
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<tr>
<td></td>
<td>BSP170P*</td>
<td>100 mΩ, .19 A, NL</td>
<td>IRLML6402*</td>
<td>135 mΩ, .47 A, SLL</td>
<td>BS521P*</td>
<td>21 D, .039 A, SLL</td>
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<tr>
<td></td>
<td>BSF1DP9NNM*</td>
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<tr>
<td></td>
<td>BSF1DP9NNM*</td>
<td>310 mΩ, .19 A, NL</td>
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<td>-12 V</td>
<td>IRLM9301*</td>
<td>110 mΩ, .47 A, SLL</td>
<td>IRLML6401*</td>
<td>110 mΩ, .47 A, SLL</td>
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</tbody>
</table>

## Small Signal/Small Power Complementary

<table>
<thead>
<tr>
<th>Voltage [V]</th>
<th>TSOP-6</th>
<th>SOT-363</th>
</tr>
</thead>
<tbody>
<tr>
<td>-20/20</td>
<td>BSSL12SC*</td>
<td>N: 250 mΩ, 1.5 A, SLL</td>
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<td></td>
<td>P: 280 mΩ, 1.5 A, SLL</td>
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<tr>
<td>-30/30</td>
<td>BSSL12SC*</td>
<td>N: 95 mΩ, 0.23 A, SLL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>P: 130 mΩ, 0.2 A, SLL</td>
</tr>
</tbody>
</table>

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1) not qualified to Automotive AEC-Q101  
2) $R_{D_{on}}$ specified at 10 V  
3) $R_{D_{on}}$ specified at 4.5 V  
4) $R_{D_{on}}$ specified at 2.5 V  
5) $R_{D_{on}}$ specified at 1.8 V  
6) $R_{D_{on}}$ specified at 0 V  

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For more details on the product, click on the part number, visit infineon.com or contact our product support.
**Nomenclature**

**Small signal**

BSX  ■ □ (■)  S  N  W  E

“X” indicates the package
D = SOT-363
P = SOT-223
R = SC59
S = SOT-89, SOT-23, SOT-323
L = TSOP-6

2-3 digits product identifier
meaning dependent on product generation

Only present in following case
S = Single (only for packages which are also used for multichip products)

Additional features
E = ESD-protected MOSFET

Only present in following case
W = to distinguish SOT-323 from SOT-23

Polarity
N = N-channel
P = P-channel
C = Complementary (N-ch + P-ch)

**Small power**

IR  F  HS  9301  TR  PBF

Drive voltage
F = 4.5 $V_{GS}$ capable for $BV \leq 30$ V
L = 2.5 $V_{GS}$ capable for $BV \leq 30$ V,
4.5 $V_{GS}$ capable for $BV \geq 40$ V

Package
Device: Option:
ML = SOT-23  TR
TS = TSOP-6  TR

PBF = Lead-Free compliance

TR = Tape and Reel when option available*

4 Digits issued sequentially
## Nomenclature

### Small signal and small power

**Package type**
- SC = Super SO8
- SD = SOT-363
- SL = TSOP-6
- SK = PQFN 2x2
- SO = SO-8
- SP = SOT-223
- SQ = CE2
- SR = SC59
- SS = SOT-89, SOT-23, SOT-323
- ST = sTOLL
- SZ = PQFN 3.3x3.3
- PA = T0-220 FullPAK
- PB = D2PAK
- PC = Chip Product
- PD = DPAK
- PF = DPAK-7Pin
- PI = I2PAK
- PP = TO-220
- PS = iPAK Short Leads
- PT = TO-Leadless
- PW = TO-247
- QA = PQFN 4.5x4
- QB = PQFN 3x2
- QC = PQFN 5x6 source down
- QE = PQFN 3.3x3 source down
- WS = DirectFET™ (S)
- WM = DirectFET™ (M)
- WL = DirectFET™ (L)

### Breakdown voltage (V)
- Divide by 10 e.g. E2 = 25 V
- 10 = 100 V
- 25 = 250 V

### Version
- N = N-channel
- P = P-channel
- C = Complementary
- G = GaN

### Level
- To be used from $V_{GS}$
  - Normal Level (NL): 10.0
  - Logic Level (LL): 4.5
  - Logic Level 5V opt. (ELL): 4.5
  - Super Logic Level (SLL): 2.5
  - Ultra Logic Level (ULL): 1.8

### Features
- D = Dual
- H = Halfbridge
- M/F… = Product brand-family
- (…OptiMOS™, …StrongRFET™)
- 3 = Marketing generation with branding strategy
- CG = Center gate
- E = ESD protection
- F = Fast switching
- FD = Fast diode
- SC = Super Cool
- I = Monolithically integrated
- Q = Schottky-like diode
- LF = Linear mode
- R = Integrated gate resistor
- None = Industrial

### Breakdown (Ω)
- Divide by 10 to get $R_{DS(on)}$ value e.g. 012 = 1.2 mΩ
- However, if the sixth character is D or E the fourth and the fifth characters indicate the $R_{DS(on)}$ e.g.
  - 12D = 120 mΩ
  - 12E = 1200 mΩ
- For chip products chip area in mm² multiplied by 10
Service hotline

Infineon offers its toll-free 0800/4001 service hotline as one central number, available 24/7 in English, Mandarin and German.

- Germany 0800 951 951 951 (German/English)
- China, mainland 4001 200 951 (Mandarin/English)
- India 000 800 4402 951 (English)
- USA 1-866 951 9519 (English/German)
- Other countries 00* 800 951 951 951 (English/German)
- Direct access +49 89 234-0 (interconnection fee, German/English)

* Please note: Some countries may require you to dial a code other than “00” to access this international number.

Please visit www.infineon.com/service for your country!

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