

# SMALL-SIGNAL TRANSISTORS & DIODES & MEDIUM-POWER RECTIFIERS

## Small-signal FETs

### N-CHANNEL SINGLE-GATE MOSFETS

| type<br>number       | mode  | ratings     |              | characteristics |                    |              |                      |                        |                 |              |                 |                   |        | package |
|----------------------|-------|-------------|--------------|-----------------|--------------------|--------------|----------------------|------------------------|-----------------|--------------|-----------------|-------------------|--------|---------|
|                      |       | $V_{DS}$    | $I_D$        | $I_{DSS}$       | $-V_{(P)GS}^{(2)}$ | $R_{DS(on)}$ | @                    | $t_{on}^{(3)}$         | $t_{off}^{(4)}$ | $C_{is}$     | $C_{rs}$        |                   |        |         |
|                      |       | max.<br>(V) | max.<br>(mA) | min.<br>(mA)    | min.<br>(V)        | max.<br>(V)  | max.<br>( $\Omega$ ) | $I_D/V_{GS}$<br>(mA/V) | typ.<br>(ns)    | typ.<br>(ns) | typ.<br>(pF)    | typ.<br>(pF)      |        |         |
| LEADED TYPES         |       |             |              |                 |                    |              |                      |                        |                 |              |                 |                   |        |         |
| BFR29                | depl. | 15          | 20           | 10              | —                  | 4            | —                    | —                      | —               | —            | 5 <sup>5)</sup> | 0.7 <sup>5)</sup> | TO-72  |         |
| BSD12 <sup>1)</sup>  | depl. | 20          | 50           | —               | —                  | 2            | 30                   | 1/10                   | 1               | 5            | 2.3             | 0.6               | TO-72  |         |
| BSD212               | enh.  | 10          | 50           | —               | 0.1                | 2            | 45                   | 1/10                   | 1               | 5            | 2.3             | 0.6               | TO-72  |         |
| BSD213 <sup>1)</sup> | enh.  | 10          | 50           | —               | 0.1                | 2            | 45                   | 1/10                   | 1               | 5            | 2.3             | 0.6               | TO-72  |         |
| BSD214               | enh.  | 20          | 50           | —               | 0.1                | 2            | 45                   | 1/10                   | 1               | 5            | 2.3             | 0.6               | TO-72  |         |
| BSD215 <sup>1)</sup> | enh.  | 20          | 50           | —               | 0.1                | 2            | 45                   | 1/10                   | 1               | 5            | 2.3             | 0.6               | TO-72  |         |
| BSV81                | depl. | 30          | 25           | 14              | —                  | 4            | 50                   | 1/5                    | —               | —            | —               | 0.5 <sup>5)</sup> | TO-72  |         |
| SURFACE-MOUNT TYPES  |       |             |              |                 |                    |              |                      |                        |                 |              |                 |                   |        |         |
| BSD22 <sup>1)</sup>  | depl. | 20          | 50           | —               | —                  | 2            | 30                   | 1/10                   | 1               | 5            | 1.5             | 0.6               | SOT143 |         |
| BSS83 <sup>1)</sup>  | enh.  | 10          | 50           | —               | 0.1                | 2            | 45                   | 0.1/10                 | 1               | 5            | 1.5             | 0.6               | SOT143 |         |

<sup>1)</sup> gate protected

<sup>2)</sup>  $V_{(GS)th}$  for enhancement types

<sup>3)</sup>  $t_{on} = t_{delay} + t_{rise}$

<sup>4)</sup>  $t_{off} = t_{delay} + t_{fall}$

<sup>5)</sup> maximum value



### DUAL-GATE N-CHANNEL MOSFETS

See **Tuner transistors & diodes** Section