

MOS FET

1. Can be used with automatic placement machines.

Available in a wide variety of packages. Like bipolar transistors, taped MOS FETs are available for assembly lines using automatic placement equipment.

2. MOS FETs operating from 4 volts and 2.5 volts

Can be directly driven from a suitable IC without buffer transistor.

3. High speed switching




New process technology provides high speed switching by decreasing total gate charge.






4. Low on-resistance

Optimization of pattern layout reduces on resistance.



•RSS140N03(30V,14A) $R_{DS(on)}$:4.9m Ω (Typ.)

Small Signal MOS FET Series









| Package | Application | Part No. | Polarity | V_{DSS} (V) | I_D (A) | P_D (W) ($T_a=25^\circ\text{C}$) | $R_{DS(on)}$ Typ.(Ω) | | Configure | Drive Voltage (V) |
|----------------------|---|---------------------------|----------|------------------|--------------|---|-------------------------------|--------------------|-----------|----------------------|
| | | | | | | | $V_{GS}=2.5\text{V}$ | $V_{GS}=4\text{V}$ | | |
| VMT3 |  | RTM002P02 | Pch | 20 | 0.2 | 0.15 | 2 | 1.1 | Single | |
| | | 2SK3541 | Nch | 30 | 0.1 | 0.15 | 7 | 5 | Single | |
| EMT3 |  | RTE002P02 | Pch | 20 | 0.2 | 0.15 | 2 | 1.1 | Single | |
| | | 2SK3019 | Nch | 30 | 0.1 | 0.15 | 7 | 5 | Single | |
| EMT6 |  | EM6K1 | Nch | 30 | 0.1 | 0.15 | 7 | 5 | Dual | |
| | | RTU002P02 | Pch | 20 | 0.25 | 0.2 | 2 | 1.1 | Single | |


| | | | | | | | | | | | |
|----------------------|---|---------------------------------|-------------------------|-----|----|-----|------|------|------|--------|-----|
| UMT3 |  | Switching | 2SK3018 | Nch | 30 | 0.1 | 0.2 | 7 | 5 | Single | 2.5 |
| | | | RJU003N03 | Nch | 30 | 0.3 | 0.2 | 1.4 | 0.9 | Single | |
| | | | RJK002N06 | Nch | 60 | 0.2 | 0.2 | 2.2 | 1.7 | Single | |
| | | | UM5K1N | Nch | 30 | 0.1 | 0.15 | 7 | 5 | Dual | |
| UMT5 |  | | UM6K1N | Nch | 30 | 0.1 | 0.15 | 7 | 5 | Dual | |
| UMT6 |  | | RJK005N03 | Nch | 30 | 0.5 | 0.2 | 0.68 | 0.43 | Single | |
| SMT3 |  | | RJP030N03 | Nch | 30 | 3 | 0.5 | 0.14 | 0.1 | Single | |
| MPT3 |  | Motor drive | 2SK3065 | Nch | 60 | 2 | 0.5 | 0.35 | 0.25 | Single | |
| | | DC-DC Converter /Motor drive | RJP020N06 | Nch | 60 | 2.5 | 0.5 | 0.21 | 0.16 | Single | |

| Package | Application | Part No. | Polarity | V _{DSS} (V) | I _D (A) | P _D (W) (Ta=25°C) | R _{DS(on)} Typ.(Ω) | | Configurate | Drive Voltage (V) |
|----------------------|-------------|---------------------------|----------|----------------------|-----------------------|---------------------------------|-----------------------------|----------------------|-------------|----------------------|
| | | | | | | | V _{GS} =4V | V _{GS} =10V | | |
| VMT3 | Switching | RSM002P03 | Pch | 30 | 0.2 | 0.15 | 1.6 | 0.9 | Single | 4 |
| EMT3 | | RSE002P03 | Pch | 30 | 0.2 | 0.15 | 1.6 | 0.9 | Single | |
| UMT3 | | RSU002P03 | Pch | 30 | 0.25 | 0.2 | 1.6 | 0.9 | Single | |
| | | RHU002N06 | Nch | 60 | 0.2 | 0.2 | 2.7 | 1.6 | Single | |
| SST3 | | RHU003N03 | Nch | 30 | 0.3 | 0.2 | 1.4 | 0.75 | Single | |
| | | RK7002 | Nch | 60 | 0.115 | 0.225* | - | 2.2 | Single | |
| | | RK7002A | Nch | 60 | 0.3 | 0.2 | 1.1 | 0.7 | Single | |
| SMT3 | | 2SK2731 | Nch | 30 | 0.2 | 0.2 | 2.8 | 1.5 | Single | |
| | | RHK005N03 | Nch | 30 | 0.5 | 0.2 | 0.58 | 0.34 | Single | |
| | | RHK003N06 | Nch | 60 | 0.3 | 0.2 | 1.1 | 0.7 | Single | |

| | | | | | | | | | | |
|----------------------|---|------------------------------|---------------------------|-----|----|-----|-----|------|------|--------|
| SMT6 |  | | SM6K2 | Nch | 60 | 0.2 | 0.2 | 2.7 | 1.6 | Dual |
| MPT3 |  | DC-DC Converter /Motor drive | 2SK2103 | Nch | 30 | 2 | 0.5 | 0.38 | 0.25 | Single |
| | | Motor drive | RHP030N03 | Nch | 30 | 3 | 0.5 | 0.16 | 0.09 | Single |
| | | | RHP020N06 | Nch | 60 | 2.5 | 0.5 | 0.24 | 0.15 | Single |

Note: * When using 1×0.75×0.062 inch glass epoxy substrates.





| TUMT3,5,6 Series | | | | | | | | | | | | | |
|------------------|-----------------------|---|---|---|---|---------------------------|--------------------|---------------------------------|------------------------------|-----------------------|-----------------------|-----------------------------------|-------------------|
| Configure | Package | | Application | Part No. | Polality | V _{DSS} (V) | I _D (A) | P _D (W) (Ta=25°C) | R _{DS(on)} Typ.(mΩ) | | | Qg(nC) (V _{GS} =4.5V) | Drive Voltage (V) |
| | | | | | | | | | V _{GS} =2.5V | V _{GS} =4.0V | V _{GS} =4.5V | | |
| Single | TUMT3 |  | Switching | RTF025N03 | Nch | 30 | 2.5 | 0.8 | 70 | 50 | 48 | 3.7 | 2.5 |
| | | | | RTF015N03 | | 30 | 1.5 | 0.8 | 250 | 180 | 170 | 1.6 | |
| | TUMT6 |  | | RTL035N03 | Pch | 30 | 3.5 | 1 | 52 | 38 | 35 | 4.6 | |
| | TUMT3 | | |  | | RTF020P02 | 20 | 2 | 0.8 | 120 | 65 | 60 | |
| | | TUMT6 | | |  | RTF015P02 | 20 | 1.5 | 0.8 | 180 | 110 | 100 | |
| | TUMT3 | | |  | | RTF010P02 | 20 | 1 | 0.8 | 570 | 310 | 280 | |
| | | TUMT6 | | |  | RTL030P02 | 20 | 3 | 1 | 90 | 55 | 50 | |
| | TUMT3 | | |  | | RTL020P02 | 20 | 2 | 1 | 180 | 110 | 100 | |
| Dual | | TUMT6 |  | | RSF014N03 | Nch | 30 | 1.4 | 0.8 | - | 270 | 250 | 1.4* |
| | US6K1 | | | 30 | 1.5 | | 1 | 250 | 180 | 170 | 1.6 | 2.5 | |
| | US6K2 | | | 30 | 1.4 | 1 | - | 270 | 250 | 1.4* | 4 | | |
| | US6J2 | | | Pch | 20 | 1 | 1 | 570 | 310 | 280 | 2.1 | 2.5 | |
| | US6M1 | | | Pch | 20 | 1 | 1 | 570 | 310 | 280 | 2.1 | 4 | |
| | | | | Nch | 30 | 1.4 | | - | 270 | 250 | 1.4* | | |
| | US6M2 | | | Pch | 20 | 1 | 1 | 570 | 310 | 280 | 2.1 | 2.5 | |
| | | | | Nch | 30 | 1.5 | | 250 | 180 | 170 | 1.6 | | |




| | | | | | | | | | | | | |
|------------|-----------------------|---|------------------------|-----|-----|-----|-----|-----|-----|-----|------|---|
| +SBD(0.5A) | TUMT5 |  | US5K3 | Nch | 30 | 1.5 | 1 | 250 | 180 | 170 | 1.6 | 4 |
| | | | US5U1 | | 30 | 1.5 | 1 | 250 | 180 | 170 | 1.6 | |
| | | | US5U2 | | 30 | 1.4 | 1 | - | 270 | 250 | 1.4* | |
| +SBD(0.7A) | | | US5U3 | 30 | 1.5 | 1 | 250 | 180 | 170 | 1.6 | 2.5 | |
| | | | US5U29 | 20 | 1 | 1 | 570 | 310 | 280 | 2.1 | | |
| | | | US5U30 | 20 | 1 | 1 | 570 | 310 | 280 | 2.1 | | |
| +SBD(0.5A) | | | | Pch | | | | | | | | |

Note: (-) symbol omitted.

*: $V_{GS}=5V$

TSMT3,5,6 Series

| Configurate | Package | | Application | Part No. | Polarity | $V_{DSS}(V)$ | $I_D(A)$ | $P_D(W)$ ($T_a=25^\circ C$) | $R_{DS(on)}Typ.(m\Omega)$ | | | | $Q_g(nC)$ ($V_{GS}=4.5V$) | Drive Voltage (V) |
|-------------|-----------------------|---|-------------|---------------------------|----------|--------------|----------|----------------------------------|---------------------------|-------------|---------------|--------------|--------------------------------|-------------------|
| | | | | | | | | | $V_{GS}=2.5V$ | $V_{GS}=4V$ | $V_{GS}=4.5V$ | $V_{GS}=10V$ | | |
| Single | TSMT6 |  | | RTQ045N03 | Nch | 30 | 4.5 | 1.25 | 42 | 31 | 30 | - | 7.6 | 2.5 |
| | | | | RTQ035N03 | | 30 | 3.5 | 1.25 | 55 | 37 | 35 | - | 5.0 | |
| | | | | RTQ020N03 | | 30 | 2 | 1.25 | 138 | 94 | 89 | - | 2.4 | |
| | TSMT3 |  | | RTR030P02 | Pch | 20 | 2 | 1 | 90 | 60 | 55 | - | 9.3 | |
| | | | | RTR025P02 | | 20 | 2.5 | 1 | 115 | 75 | 70 | - | 7.0 | |
| | | | | RTR020P02 | | 20 | 2 | 1 | 180 | 110 | 100 | - | 4.9 | |
| | TSMT6 |  | | RTQ035P02 | Pch | 20 | 3.5 | 1.25 | 80 | 55 | 50 | - | 10.5 | |
| | | | | RTQ030P02 | | 20 | 3 | 1.25 | 110 | 65 | 60 | - | 8.0 | |
| | | | | RTQ025P02 | | 20 | 2.5 | 1.25 | 140 | 80 | 72 | - | 6.4 | |
| | TSMT3 |  | | RTQ040P02 | Pch | 20 | 4 | 1.25 | 60 | 40 | 35 | - | 12.2 | |
| | | | | RSR025N03 | | 30 | 2.5 | 1 | - | 83 | 74 | 50 | 2.9* | |
| | | | | RSQ035P03 | | 30 | 3.5 | 1.25 | - | 80 | 65 | 45 | 9.0* | |
| | | | | RSQ030P03 | Pch | 30 | 3.0 | 1.25 | - | 100 | 90 | 60 | 6.0* | 4 |
| | | | | RSQ025P03 | | 30 | 2.5 | 1.25 | - | 145 | 120 | 80 | 5.0* | |
| | | | | QS6K1 | Nch | 30 | 1 | 1 | 260 | 180 | 170 | - | 1.7 | |



| | | | | | | | | | | | | | | | | | |
|------------|------------------------|---|------------------------|-----------------------|-----|-----------|------------------------|-----|-----|-----|-----|------|-----|-----|-----|---|-----|
| Dual | TSMT6 |  | Switching | QS6J1 | Pch | 20 | 1.5 | 1 | 310 | 170 | 155 | - | 3.0 | 2.5 | | | |
| | | | | QS6J3 | | 20 | 1.5 | 1 | 310 | 170 | 155 | - | 3.0 | | | | |
| | | | | QS6M3 | Pch | Pch + Nch | 20 | 1.5 | 1 | 310 | 170 | 155 | - | | 3.0 | | |
| | | | | | Nch | | 30 | 1.5 | | 260 | 180 | 170 | - | | 1.7 | | |
| | | | | QS6M4 | Pch | Pch + Nch | 20 | 1.5 | 1 | 310 | 170 | 155 | - | | 3.0 | | |
| | | | | | Nch | | 30 | 1.5 | | 260 | 180 | 170 | - | | 1.7 | | |
| | | | | +SBD(1A) | | | QS5U12 | Nch | 30 | 2 | 1 | 110 | 76 | | 71 | - | 2.8 |
| | | | | +SBD(0.5A) | | | QS5U16 | | | | | | | | | | |
| | QS5U13 | | | | | | | | | | | | | | | | |
| | QS5U17 | | | | | | | | | | | | | | | | |
| +SBD(1A) | TSMT5 |  | QS5U21 | Pch | 20 | 1.5 | 1 | 260 | 180 | 160 | - | 4.5 | | | | | |
| +SBD(0.5A) | | | QS5U27 | | | | | | | | | | | | | | |
| | | | QS5U23 | | | | | | | | | | | | | | |
| | | | QS5U26 | | | | | | | | | | | | | | |
| +SBD(1A) | | | QS5U28 | Pch | 20 | 2 | 1 | 170 | 97 | 90 | - | 5.0 | | | | | |
| | | | QS6U22 | | | | | | | | | | | | | | |
| +SBD(0.7A) | | | QS6U24 | | | | | | | | | | | | | | |
| | TSMT6 |  | | | 30 | 1 | 1 | - | 600 | 500 | 300 | 1.7* | 4 | | | | |

Note: (-) symbol omitted.

*: V_{GS}=5V



SOP-8 Series

| Configure | Package | Application | Part No. | Polarity | V _{DSS} (V) | I _D (A) | P _D (W) (Ta=25°C) | R _{DS(on)} Typ.(mΩ) | | | Qg(nC) (V _{GS} =5V) | Drive Voltage (V) |
|-----------|---------|-----------------|---------------------------|----------|----------------------|--------------------|------------------------------|------------------------------|-----------------------|----------------------|------------------------------|-------------------|
| | | | | | | | | V _{GS} =4V | V _{GS} =4.5V | V _{GS} =10V | | |
| | | DC-DC Converter | RSS140N03 | | 30 | 14 | 2 | 6.5 | 6 | 4.9 | 37 | |
| | | | RSS130N03 | | 30 | 13 | 2 | 7.9 | 7.4 | 5.9 | 25 | |
| | | | RSS125N03 | | 30 | 12.5 | 2 | 9.3 | 8.6 | 6.5 | 20 | |
| | | | RSS120N03 | | 30 | 12 | 2 | 10.2 | 9.4 | 7.1 | 18 | |

| | | | | | | | | | | | | |
|-----------------------|-----------------------|---|---|---------------------------|-----------|-----|------|-----|------|------|-----|-----|
| Single | SOP8 |  | Switching | RSS110N03 | Nch | 30 | 11 | 2 | 11.2 | 10.3 | 7.6 | 17 |
| | | | | RSS105N03 | | 30 | 10.5 | 2 | 12.4 | 11.4 | 8.5 | 15 |
| | | | | RSS100N03 | | 30 | 10 | 2 | 13.5 | 12.5 | 9.5 | 14 |
| | | | | RSS090N03 | | 30 | 9 | 2 | 17 | 15 | 11 | 11 |
| | | | | RSS065N03 | | 30 | 6.5 | 2 | 30 | 27 | 19 | 6.1 |
| | | | Switching | RSS090P03 | Pch | 30 | 9 | 2 | 17 | 15 | 10 | 39 |
| | | | | RSS075P03 | | 30 | 7.5 | 2 | 25 | 22 | 15 | 30 |
| | | | | RSS050P03 | | 30 | 5 | 2 | 55 | 47 | 30 | 13 |
| | | | | RSS040P03 | | 30 | 4 | 2 | 78 | 68 | 42 | 8 |
| | | | DC-DC Converter Motor Drive Switching | SP8K4 | Nch ×2 | 30 | 9 | 2 | 17 | 16 | 12 | 15 |
| SP8K3 | 30 | 7 | | 2 | | 25 | 23 | 17 | 8.4 | | | |
| SP8K2 | 30 | 6 | | 2 | | 33 | 30 | 21 | 7.2 | | | |
| SP8K1 | 30 | 5 | | 2 | | 58 | 52 | 36 | 3.9 | | | |
| SP8K5 | 30 | 3.5 | | 2 | | 107 | 93 | 59 | 2.5 | | | |
| Switching | SP8J5 | Pch ×2 | 30 | 7 | 2 | 30 | 25 | 20 | 25 | | | |
| | SP8J1 | | 30 | 5 | 2 | 45 | 40 | 30 | 16 | | | |
| | SP8J2 | | 30 | 4.5 | 2 | 65 | 57 | 40 | 8.5 | | | |
| | SP8J3 | | 30 | 3.5 | 2 | 120 | 100 | 65 | 5.5 | | | |
| | SP8J4 | | 30 | 2 | 2 | 320 | 270 | 170 | 2.5 | | | |
| Dual | SOP8 |  | SP8M3 | Nch | 30 | 5 | 2 | 58 | 52 | 36 | 3.9 | |
| | | | | Pch | 30 | 4.5 | | 65 | 57 | 40 | 8.5 | |
| | | | SP8M4 | Nch | 30 | 9 | 2 | 17 | 16 | 12 | 15 | |
| | | | | Pch | 30 | 7 | | 30 | 25 | 20 | 25 | |
| | | | SP8M5 | Nch | 30 | 6 | 2 | 33 | 30 | 21 | 7.2 | |
| | | | | Pch | 30 | 7 | | 30 | 25 | 20 | 25 | |
| | | | SP8M6 | Nch | 30 | 5 | 2 | 58 | 52 | 36 | 3.9 | |
| | | | | Pch | 30 | 3.5 | | 120 | 100 | 65 | 5.5 | |
| | | | SP8M7 | Nch | 30 | 5 | 2 | 58 | 52 | 36 | 3.9 | |

| | | | | | | | | | | | |
|--|--|--|-----------------------|-----|----|-----|---|----|----|----|-----|
| | | | | Pch | 30 | 7 | | 30 | 25 | 20 | 25 |
| | | | SP8M8 | Nch | 30 | 6 | 2 | 33 | 30 | 21 | 7.2 |
| | | | | Pch | 30 | 4.5 | | 65 | 57 | 40 | 8.5 |
| | | | SP8M9 | Nch | 30 | 9 | 2 | 17 | 16 | 12 | 15 |
| | | | | Pch | 30 | 5 | | 45 | 40 | 30 | 16 |
| | | | SP8M10 | Nch | 30 | 7 | 2 | 25 | 23 | 17 | 8.4 |
| | | | | Pch | 30 | 4.5 | | 65 | 57 | 40 | 8.5 |

Power MOS FET Series

| Configure | Package | | Application | Part No. | Polarity | V _{DSS} (V) | I _D (A) | P _D (W) (Ta=25°C) | R _{DS(on)} Typ.(Ω) | | Drive Voltage (V) |
|-----------|-------------------------|---|-------------|---------------------------|---------------------------|----------------------|-----------------------|---------------------------------|-----------------------------|----------------------|-------------------------|
| | | | | | | | | | V _{GS} =4V | V _{GS} =10V | |
| Single | CPT3 |  | Switching | 2SK2094 | Nch | 60 | 2 | 20 | 0.4 | 0.3 | 4 |
| | | | | 2SK2503 | Nch | 60 | 5 | 20 | 0.17 | 0.11 | |
| | | | | RK3055E | Nch | 60 | 8 | 20 | - | 0.15Max. | 10 |
| | | | | 2SK2504 | Nch | 100 | 5 | 20 | 0.25 | 0.18 | 4 |
| | | | | 2SK2887 | Nch | 200 | 3 | 20 | - | 0.7 | 10 |
| | | | | 2SK2715 | Nch | 500 | 2 | 20 | - | 3 | |
| | 2SK3805 | Nch | | 200 | 5 | 25 | - | 0.55 | | | |
| | PSD |  | | 2SK3806 | Nch | 200 | 10 | 35 | - | 0.27 | |
| | | | | 2SK3807 | Nch | 200 | 15 | 55 | - | 0.12 | |
| | | | | 2SK3808 | Nch | 250 | 8 | 35 | - | 0.38 | |
| | | | | 2SK3809 | Nch | 250 | 12 | 55 | - | 0.16 | |
| | | | | RDN050N20 | Nch | 200 | 5 | 30 | - | 0.55 | |
| | | | | RDN100N20 | Nch | 200 | 10 | 35 | - | 0.27 | |
| | | | | | RDN150N20 | Nch | 200 | 15 | 40 | - | 0.12 |
| | | | | | RDN080N25 | Nch | 250 | 8 | 35 | - | 0.38 |

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| | | | | | | |
|--------------------------|-----|-----|----|----|------|------|
| 2SK2095N | Nch | 60 | 10 | 30 | 0.11 | 0.08 |
| 2SK2713 | Nch | 450 | 5 | 30 | - | 1 |
| 2SK2299N | Nch | 450 | 7 | 30 | - | 0.85 |
| 2SK2793 | Nch | 500 | 5 | 30 | - | 1.1 |
| 2SK2792 | Nch | 600 | 4 | 30 | - | 1.8 |
| 2SK2740 | Nch | 600 | 7 | 30 | - | 1 |

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