Elektronische Bauelemente

# SSE90P06-08P

**-90A , -60V , $R_{DS(ON)}$ 12mΩ**

**P-Channel Enhancement Mode MOSFET**

RoHS Compliant Product

A suffix of "-C" specifies halogen and lead-free

## DESCRIPTION

These miniature surface mount MOSFETs utilize a high cell density trench process to provide low $R_{DS(on)}$ and to ensure minimal power loss and heat dissipation.

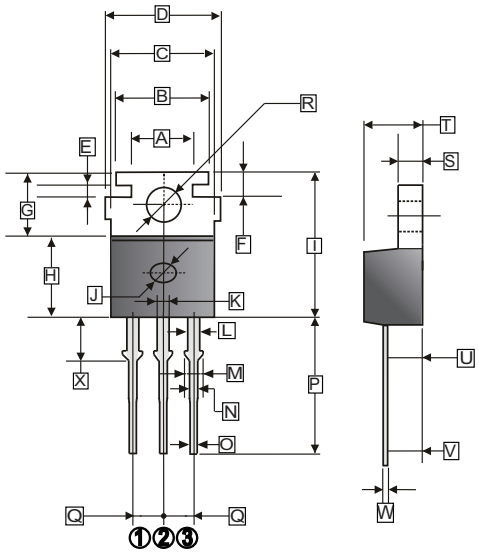
## FEATURES

- Low $R_{DS(on)}$ provides higher efficiency and extends battery life.
- Low thermal impedance copper leadframe TO-220P saves board space.
- Fast Switch Speed.
- High performance trench technology.

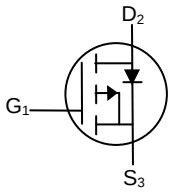
## APPLICATION

DC-DC converters and power management in portable and battery-powered products such as computers, printers, PCMCIA cards, cellular and cordless telephones.

**TO-220P**




**P-Channel**




| REF. | Millimeter | | REF. | Millimeter | |
|---|---|---|---|---|---|
| | Min. | Max. | | Min. | Max. |
| A | 7.90 | 8.10 | M | - | 1.50 |
| B | 9.45 | 9.65 | N | 0.75 | 0.95 |
| C | 9.87 | 10.47 | O | 0.66 | 0.86 |
| D | - | 11.50 | P | 13.50 | 14.50 |
| E | 1.06 | 1.46 | Q | 2.44 | 3.44 |
| F | 2.60 | 3.00 | R | 3.50 | 3.70 |
| G | 6.30 | 6.70 | S | 1.15 | 1.45 |
| H | 8.35 | 8.75 | T | 4.30 | 4.70 |
| I | 14.7 | 15.3 | U | - | 2.7 |
| J | 1.60 Typ. | | V | 1.89 | 3.09 |
| K | 1.10 | 1.30 | W | 0.40 | 0.60 |
| L | 1.17 | 1.37 | X | 2.60 | 3.60 |

## ABSOLUTE MAXIMUM RATINGS ($T_A$=25°C unless otherwise specified)

| Parameter | | Symbol | Ratings | Unit |
|---|---|---|---|---|
| Drain-Source Voltage | | $V_{DS}$ | -60 | V |
| Gate-Source Voltage | | $V_{GS}$ | ±20 | V |
| Continuous Drain Current [1] | $T_C$=25°C | $I_D$ | -90 | A |
| Pulsed Drain Current [2] | | $I_{DM}$ | -390 | A |
| Continuous Source Current (Diode Conduction) [1] | | $I_S$ | -110 | A |
| Power Dissipation [1] | $T_C$=25°C | $P_D$ | 300 | W |
| Operating Junction and Storage Temperature Range | | $T_J$, $T_{STG}$ | -55~175 | °C |
| **Thermal Resistance Rating** | | | | |
| Maximum Junction to Ambient [1] | | $R_{\theta JA}$ | 62.5 | °C / W |
| Maximum Junction to Case | | $R_{\theta JC}$ | 0.5 | |

Notes:

1 Package Limited.

2 Pulse width limited by maximum junction temperature.

## ELECTRICAL CHARACTERISTICS ($T_A$=25°C unless otherwise specified)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Teat Conditions |
|---|---|---|---|---|---|---|
| **Static** | | | | | | |
| Gate-Threshold Voltage | $V_{GS(th)}$ | -1 | - | - | V | $V_{DS}$=$V_{GS}$, $I_D$= -250μA |
| Gate-Body Leakage | $I_{GSS}$ | - | - | ±100 | nA | $V_{DS}$=0, $V_{GS}$= -20V |
| Zero Gate Voltage Drain Current | $I_{DSS}$ | - | - | -1 | μA | $V_{DS}$= -48V, $V_{GS}$=0 |
| | | - | - | -25 | | $V_{DS}$= -48V, $V_{GS}$=0, $T_J$=55°C |
| On-State Drain Current [1] | $I_{D(on)}$ | -120 | - | - | A | $V_{DS}$= -5V, $V_{GS}$= -10V |
| Drain-Source On-Resistance [1] | $R_{DS(ON)}$ | - | - | 12 | mΩ | $V_{GS}$= -10V, $I_D$= -2A |
| | | - | - | 14 | | $V_{GS}$= -4.5V, $I_D$= -2A |
| Forward Transconductance [1] | $g_{fs}$ | - | 30 | - | S | $V_{DS}$= -15V, $I_D$= -2A |
| Diode Forward Voltage | $V_{SD}$ | - | -1.1 | - | V | $I_S$= -2A, $V_{GS}$=0 |
| **Dynamic [2]** | | | | | | |
| Total Gate Charge | $Q_g$ | - | 100 | - | nC | $V_{DS}$= -15V, $V_{GS}$= -4.5V, $I_D$= -2A |
| Gate-Source Charge | $Q_{gs}$ | - | 30 | - | | |
| Gate-Drain Charge | $Q_{gd}$ | - | 40 | - | | |
| Turn-on Delay Time | $T_{d(on)}$ | - | 20 | - | nS | $V_{DD}$= -25V, $V_{GEN}$= -10V, $R_L$=25Ω, $I_D$= -34A |
| Rise Time | $T_r$ | - | 20 | - | | |
| Turn-off Delay Time | $T_{d(off)}$ | - | 300 | - | | |
| Fall Time | $T_f$ | - | 100 | - | | |

Notes:
1 Pulse test：PW ≦ 300 μs duty cycle ≦ 2%.
2 Guaranteed by design, not subject to production testing.