

## 3407SRG



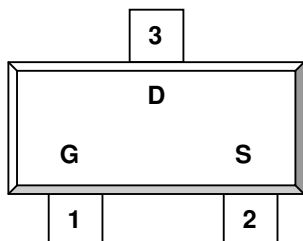
P Channel Enhancement Mode MOSFET

-3.6A

### DESCRIPTION

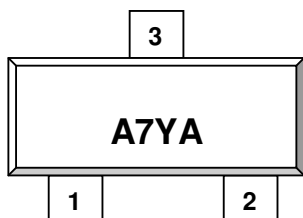
3407SRG is the P-Channel logic enhancement mode power field effect transistor which is produced using high cell density, DMOS trench technology. This high density process is especially tailored to minimize on-state resistance. These devices are particularly suited for low voltage application such as cellular phone and notebook computer power management, other battery powered circuits, and low in-line power loss are required. The product is in a very small outline surface mount package.

### PIN CONFIGURATION SOT-23



1.Gate 2.Source 3.Drain

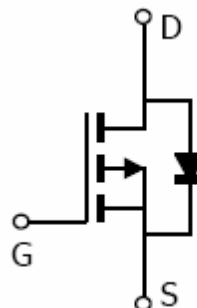
### PART MARKING SOT-23



Y: Year Code A: Process Code

### FEATURE

- -30V/-4.0A,  $R_{DS(ON)} = 54m\Omega$  (Typ.)  
@ $V_{GS} = -10V$
- -30V/-3.2A,  $R_{DS(ON)} = 72m\Omega$   
@ $V_{GS} = -4.5V$
- Super high density cell design for extremely low  $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- SOT-23 package design



**ABSOLUTE MAXIMUM RATINGS** (Ta = 25°C Unless otherwise noted )

| Parameter                                        |                                              | Symbol           | Typical      | Unit |
|--------------------------------------------------|----------------------------------------------|------------------|--------------|------|
| Drain-Source Voltage                             |                                              | V <sub>DSS</sub> | -30          | V    |
| Gate-Source Voltage                              |                                              | V <sub>GSS</sub> | ±20          | V    |
| Continuous Drain Current (T <sub>J</sub> =150°C) | T <sub>A</sub> =25°C<br>T <sub>A</sub> =70°C | I <sub>D</sub>   | -3.6<br>-3.0 | A    |
| Pulsed Drain Current                             |                                              | I <sub>DM</sub>  | -15          | A    |
| Continuous Source Current (Diode Conduction)     |                                              | I <sub>S</sub>   | -1.0         | A    |
| Power Dissipation                                | T <sub>A</sub> =25°C<br>T <sub>A</sub> =70°C | P <sub>D</sub>   | 1.20<br>0.8  | W    |
| Operation Junction Temperature                   |                                              | T <sub>J</sub>   | 150          | °C   |
| Storage Temperature Range                        |                                              | T <sub>STG</sub> | -55/150      | °C   |
| Thermal Resistance-Junction to Ambient           |                                              | R <sub>θJA</sub> | 120          | °C/W |

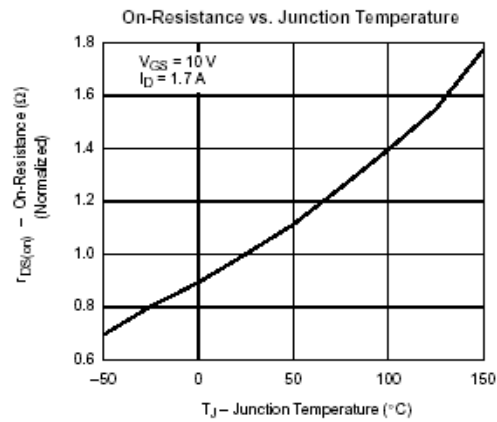
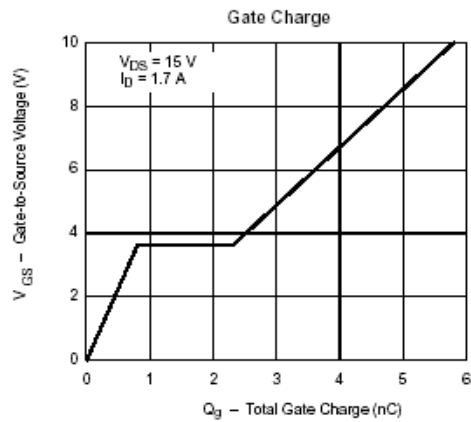
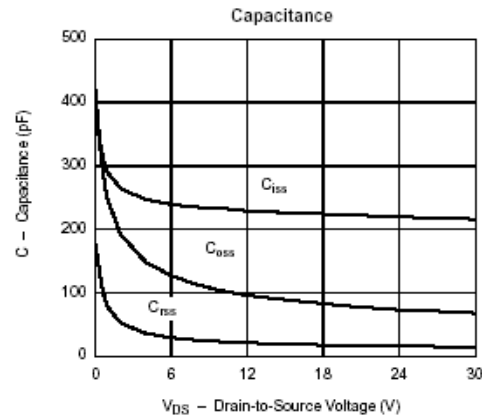
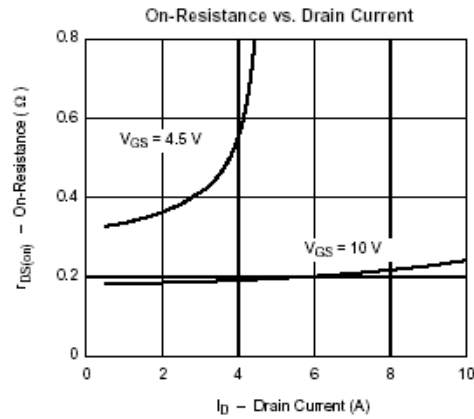
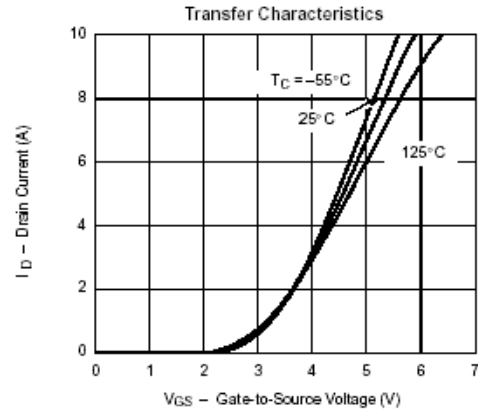
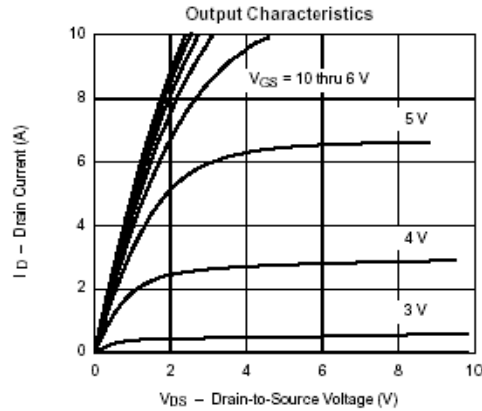
**3407SRG**

P Channel Enhancement Mode MOSFET

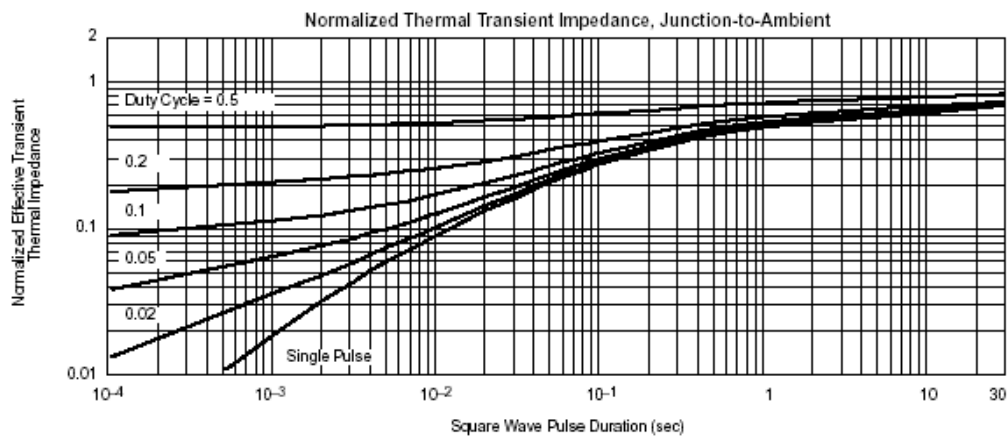
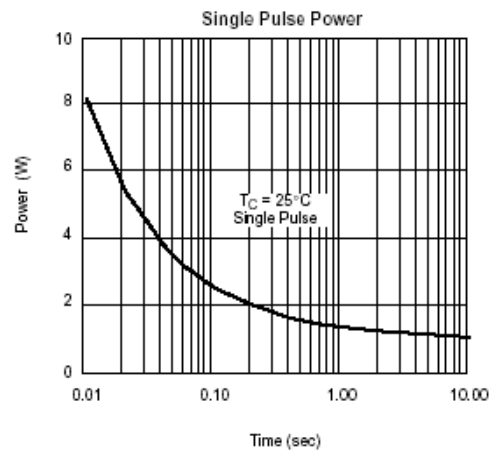
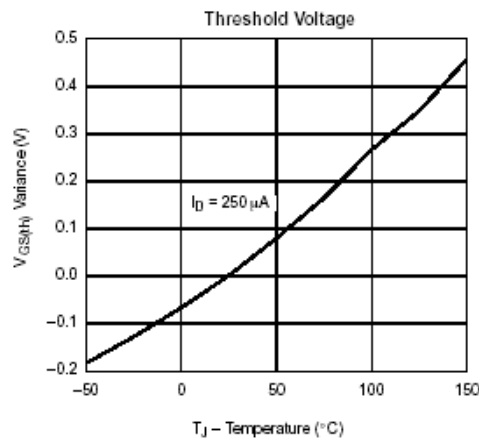
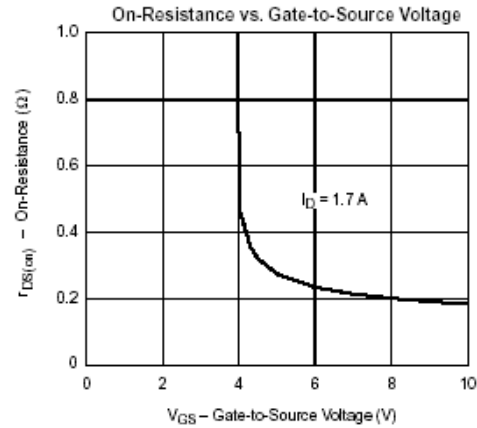
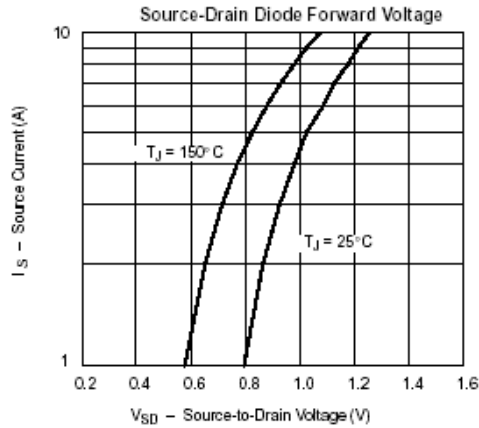
**-3.6A****ELECTRICAL CHARACTERISTICS** ( Ta = 25°C Unless otherwise noted )

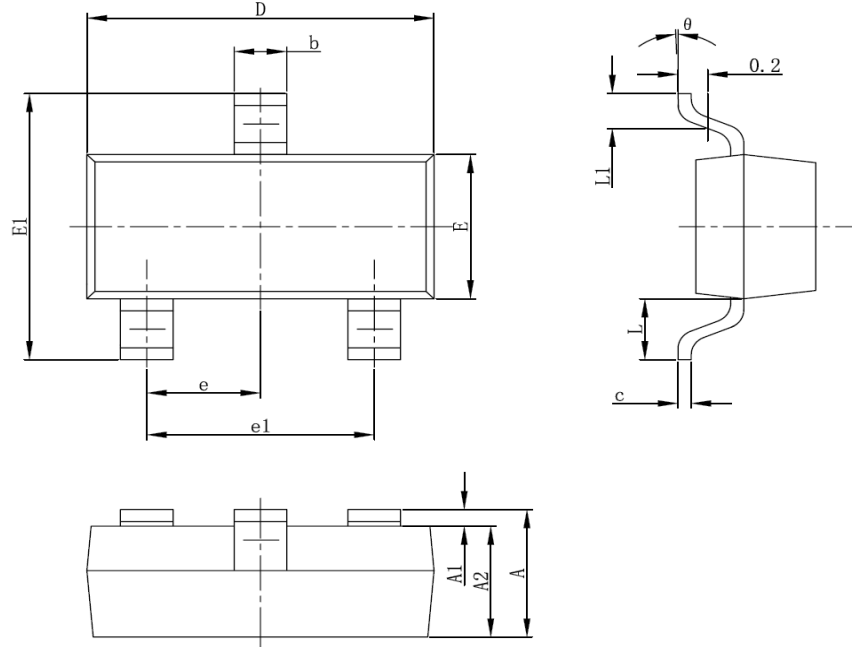
| Parameter                       | Symbol            | Condition                                                                         | Min  | Typ      | Max       | Unit      |
|---------------------------------|-------------------|-----------------------------------------------------------------------------------|------|----------|-----------|-----------|
| Static                          |                   |                                                                                   |      |          |           |           |
| Drain-Source Breakdown Voltage  | $V_{(BR)DSS}$     | $V_{GS}=0V, I_D=-250\mu A$                                                        | -30  |          |           | V         |
| Gate Threshold Voltage          | $V_{GS(th)}$      | $V_{DS}=V_{GS}, I_D=-250\mu A$                                                    | -1.0 |          | -3.0      | V         |
| Gate Leakage Current            | $I_{GSS}$         | $V_{DS}=0V, V_{GS}=\pm 20V$                                                       |      |          | $\pm 100$ | Na        |
| Zero Gate Voltage Drain Current | $I_{DSS}$         | $V_{DS}=-24V, V_{GS}=0V$                                                          |      |          | -1        | UA        |
|                                 |                   | $V_{DS}=-24V, V_{GS}=0V$<br>$T_J=55^{\circ}C$                                     |      |          | -9.5      |           |
| Drain-source On-Resistance      | $R_{DS(on)}$      | $V_{GS}=-10.0V, I_D=-4.0A$<br>$V_{GS}=-4.5V, I_D=-3.2A$                           |      | 54<br>72 |           | $m\Omega$ |
| Forward Transconductance        | $g_{fs}$          | $V_{DS}=-5.0V, I_D=-4.0A$                                                         |      | 10       |           | S         |
| Diode Forward Voltage           | $V_{SD}$          | $I_S=-1.0A, V_{GS}=0V$                                                            |      | -0.8     | -1.2      | V         |
| Dynamic                         |                   |                                                                                   |      |          |           |           |
| Total Gate Charge               | $Q_g$             | $V_{DS}=-15V$<br>$V_{GS}=-10V$<br>$I_D=-4.0A$                                     |      | 14       | 21        | nC        |
| Gate-Source Charge              | $Q_{gs}$          |                                                                                   |      | 1.9      |           |           |
| Gate-Drain Charge               | $Q_{gd}$          |                                                                                   |      | 3.7      |           |           |
| Input Capacitance               | $C_{iss}$         | $V_{DS}=-15V$<br>$V_{GS}=0V$<br>$F=1MHz$                                          |      | 540      |           | pF        |
| Output Capacitance              | $C_{oss}$         |                                                                                   |      | 131      |           |           |
| Reverse Transfer Capacitance    | $C_{rss}$         |                                                                                   |      | 105      |           |           |
| Turn-On Time                    | $t_{d(on)}^{tr}$  | $V_{DD}=-15V$<br>$R_L=15\Omega$<br>$I_D=-1.0A$<br>$V_{GEN}=-10V$<br>$R_G=6\Omega$ |      | 10       | 16        | nS        |
| Turn-Off Time                   | $t_{d(off)}^{tf}$ |                                                                                   |      | 16       | 25        |           |
|                                 |                   |                                                                                   |      | 32       | 50        |           |
|                                 |                   |                                                                                   |      | 21       | 32        |           |

## TYPICAL CHARACTERISTICS (25°C unless otherwise noted)



## TYPICAL CHARACTERISTICS (25°C unless otherwise noted)



**SOT-23 PACKAGE OUTLINE**


| Symbol   | Dimensions In Millimeters |       | Dimensions In Inches |       |
|----------|---------------------------|-------|----------------------|-------|
|          | Min                       | Max   | Min                  | Max   |
| A        | 0.900                     | 1.100 | 0.035                | 0.043 |
| A1       | 0.000                     | 0.100 | 0.000                | 0.004 |
| A2       | 0.900                     | 1.000 | 0.035                | 0.039 |
| b        | 0.300                     | 0.500 | 0.012                | 0.020 |
| c        | 0.080                     | 0.150 | 0.003                | 0.006 |
| D        | 2.800                     | 3.000 | 0.110                | 0.118 |
| E        | 1.200                     | 1.400 | 0.047                | 0.055 |
| E1       | 2.250                     | 2.550 | 0.089                | 0.100 |
| e        | 0.950TYP                  |       | 0.037TYP             |       |
| e1       | 1.800                     | 2.000 | 0.071                | 0.079 |
| L        | 0.550REF                  |       | 0.022REF             |       |
| L1       | 0.300                     | 0.500 | 0.012                | 0.020 |
| $\theta$ | 0°                        | 8°    | 0°                   | 8°    |