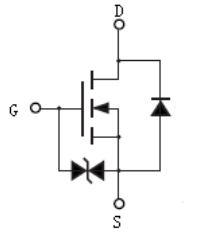
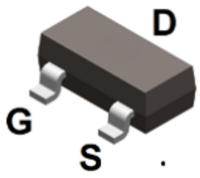
# LGE05N60C

**N-Channel Enhancement Mode MOSFET**

## FEATURES

- High density cell design for low $R_{DS(ON)}$
- Voltage controlled small signal switch
- Rugged and reliable
- High saturation current capability




**SOT-23**

## APPLICATIONS

- N-channel enhancement mode effect transistor
- Switching application

## ORDERING INFORMATION

| Type No. | Marking | Package Code |
|---|---|---|
| LGE05N60C | 05N60 | SOT-23 |

## MAXIMUM RATING @ Ta=25℃ unless otherwise specified

| Symbol | Parameter | Value | Units |
|---|---|---|---|
| $V_{DSS}$ | Drain-Source voltage | 60 | V |
| $V_{DGR}$ | Drain-Gate voltage($R_{GS}$≤1MΩ) | 60 | V |
| $V_{GSS}$ | Gate -Source voltage - continuous<br>-Non Repetitive ($t_p$<50μs) | ±20<br>±40 | V |
| $I_D$ | Maximum Drain current -continuous<br>-Pulsed | 600<br>1600 | mA |
| $P_D$ | Power Dissipation | 350 | mW |
| $R_{\Theta jA\ (NOTE1)}$ | Thermal resistance,Junction-to-Ambient | 357 | ℃/W |
| $R_{\Theta jC(NOTE1)}$ | Thermal resistance,Junction-to-Case | 90 | ℃/W |
| $T_J$, Tstg | Junction and Storage Temperature | -50 to +150 | ℃ |

NOTE1: R$\theta$JA is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins. R$\theta$JC is guaranteed by design while R$\theta$CA is determind by the user's board design. The value of R$\theta$JA is measured with device mounted on 1 in2 FR-4 board with 2 oz copper.

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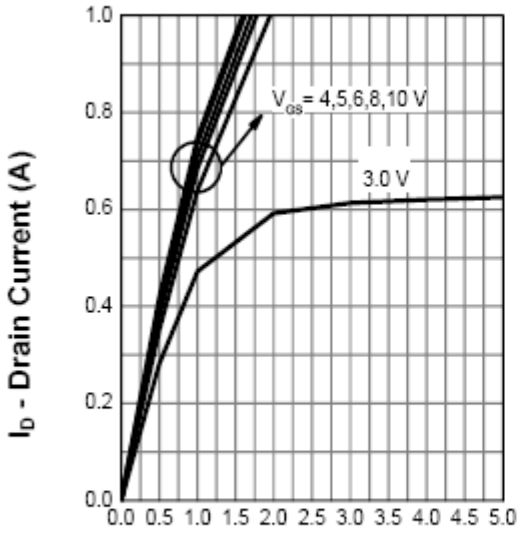
## ELECTRICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

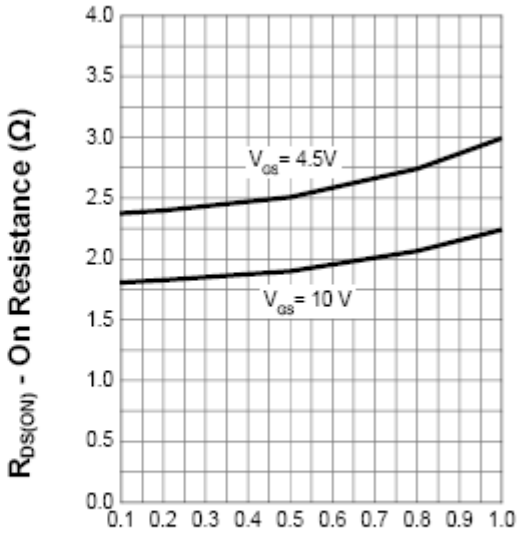
| Parameter | Symbol | Test conditions | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|
| Drain-Source Breakdown Voltage | $V_{(BR)DSS}$ | $V_{GS}$=0V,$I_D$=10μA | 60 | 70 | - | V |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS}$=$V_{GS}$, $I_D$=250μA | 1 | - | 2.0 | |
| Gate-body Leakage Forward | $I_{GSS}$ | $V_{DS}$=0V, $V_{GS}$=20V | - | - | 1 | uA |
| Reverse | | $V_{DS}$=0V, $V_{GS}$=-20V | - | - | -1 | |
| Zero Gate Voltage Drain Current | $I_{DSS}$ | $V_{DS}$=60V, $V_{GS}$=0V | - | - | 1 | μA |
| | | $V_{DS}$=60V,$V_{GS}$=0V,$T_j$=125℃ | - | - | 500 | |
| On-state Drain Current | $I_{D(On)}$ | $V_{GS}$=10V, $V_{DS}$≥2.0$V_{DS(ON)}$ | 0.5 | 1.0 | - | A |
| Drain-Source on-voltage | $V_{DS(ON)}$ | $V_{GS}$=10V,$I_D$=500mA | - | 0.6 | 3.75 | V |
| | | $V_{GS}$=5V,$I_D$=50mA | - | 0.09 | 1.5 | |
| Forward transconductance | $g_{FS}$ | $V_{DS}$=10,$I_D$=200mA | 80 | - | - | mS |
| Static drain-Source on-resistance | $R_{DS(ON)}$ | $V_{GS}$=10V,$I_D$=500mA, | - | | 1.7 | Ω |
| | | $V_{GS}$=5.0V,$I_D$=50mA | - | | 2.5 | |
| On-state drain current | $I_{D(ON)}$ | $V_{GS}$=10V,$V_{DS}$=7.5V | 0.5 | 1.0 | - | A |
| Drain-Source diode forward voltage | $V_{SD}$ | $V_{GS}$=0V,$I_S$=115mA | - | 0.88 | 1.2 | V |
| Input capacitance | $C_{ISS}$ | $V_{DS}$=25V,$V_{GS}$=0V,f=1.0MHz | - | 20 | 50 | pF |
| Output capacitance | $C_{OSS}$ | | - | 11 | 25 | |
| Reverse transfer capacitance | $C_{RSS}$ | | - | 2 | 5 | |
| Turn-On Delay Time | $t_{D(ON)}$ | $V_{DD}$ = 30V, $I_D$= 0.2A, $R_L$ = 150Ω, $V_{GS}$= 10V, $R_{GEN}$= 25Ω | - | 6 | | ns |
| Turn-On rise Time | $t_r$ | | | 5 | | |
| Turn-Off Delay Time | $t_{D(OFF)}$ | | - | 25 | | |
| Turn-Off Fall Time | $t_f$ | | | 15 | | |

## TYPICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

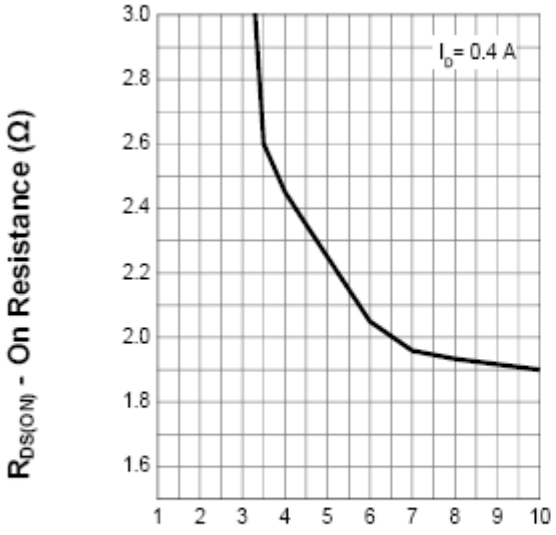
**Output Characteristics**



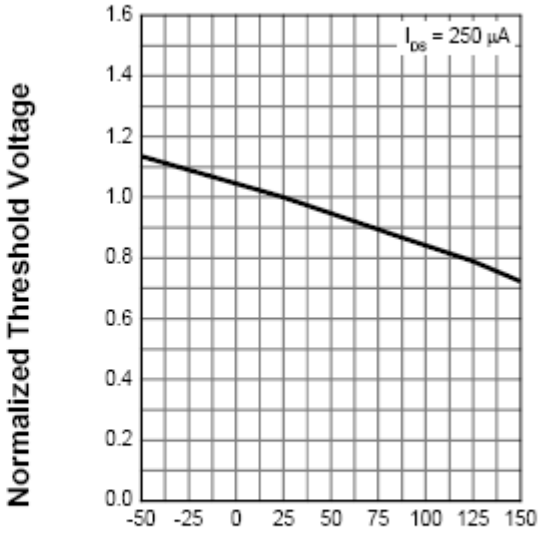

**Drain-Source On Resistance**



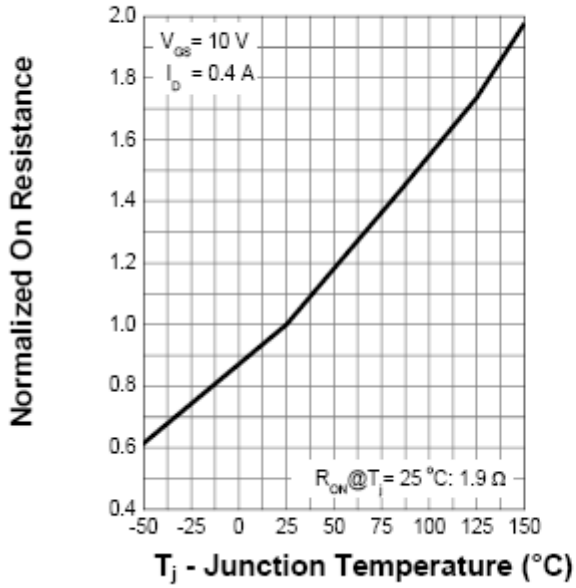

**Transfer Characteristics**



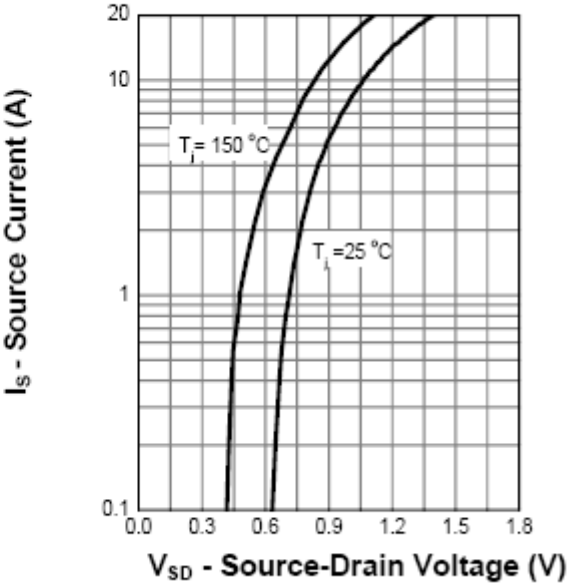

**Gate Threshold Voltage**



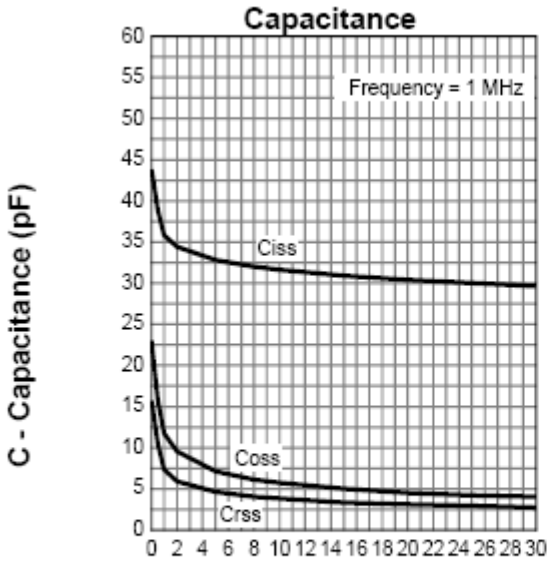
Drain-Source On Resistance



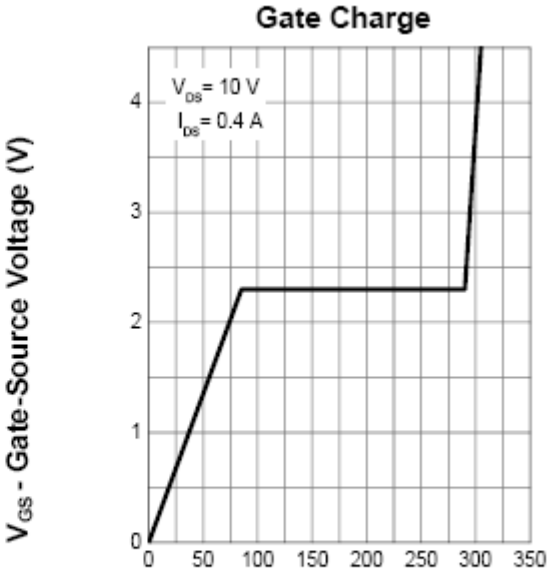

Source-Drain Diode Forward




Capacitance




Gate Charge



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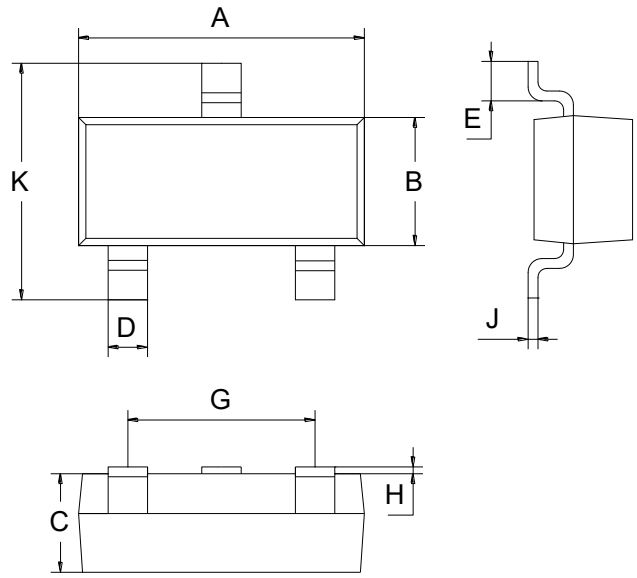
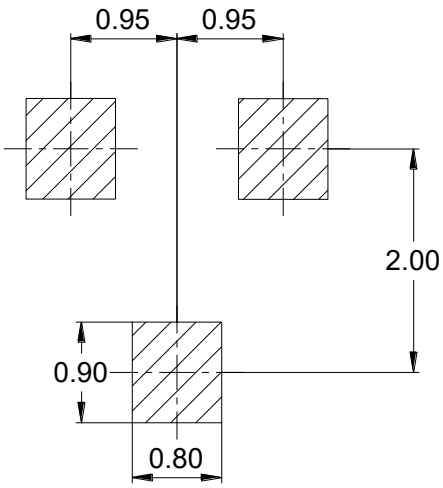
## PACKAGE OUTLINE

Plastic surface mounted package SOT-23




| SOT-23 | | |
|---|---|---|
| Dim | Min | Max |
| A | 2.70 | 3.10 |
| B | 1.10 | 1.50 |
| C | 0.90 | 1.10 |
| D | 0.30 | 0.50 |
| E | 0.35 | 0.48 |
| G | 1.80 | 2.00 |
| H | 0.02 | 0.10 |
| J | 0.05 | 0.15 |
| K | 2.20 | 2.60 |
| All Dimensions in mm | | |

## SOLDERING FOOTPRINT




Unit: mm

## PACKAGE INFORMATION

| Device | Package | Shipping |
|---|---|---|
| LGE05N60C | SOT-23 | 3000 pcs / Tape & Reel |