

Power MOSFET

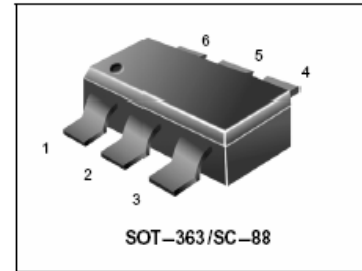
130 mAmps, 50 Volts

P-Channel SC88

These miniature surface mount MOSFETs reduce power loss conserve energy, making this device ideal for use in small power management circuitry. Typical applications are dc-dc converters, load switching, power management in portable and battery-powered products such as computers, printers, cellular and cordless telephones.

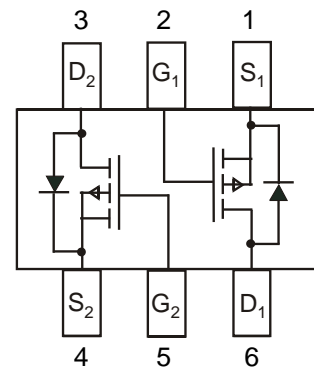
- Energy Efficient
- Miniature SC88 Surface Mount Package Saves Board Space
- Pb-Free Package is available.
- S- Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable.

LBSS84DW1T1G
S-LBSS84DW1T1G



MAXIMUM RATINGS (T_J = 25°C unless otherwise noted)

| Rating | Symbol | Value | Unit |
|---|-----------------------------------|-------------|-----------------|
| Drain-to-Source Voltage | V _{DSS} | -50 | V _{dc} |
| Gate-to-Source Voltage – Continuous | V _{GS} | ± 20 | V _{dc} |
| Drain Current | | | mA |
| – Continuous @ T _A = 25°C | I _D | -130 | |
| – Pulsed Drain Current (t _p ≤ 10 μs) | I _{DM} | -520 | |
| Total Power Dissipation @ T _A = 25°C | P _D | 380 | mW |
| Operating and Storage Temperature Range | T _J , T _{stg} | - 55 to 150 | °C |
| Thermal Resistance – Junction-to-Ambient | R _{θJA} | 328 | °C/W |
| Maximum Lead Temperature for Soldering Purposes, for 10 seconds | T _L | 260 | °C |



ORDERING INFORMATION

| Device | Marking | Shipping |
|--------------------------------|---------|-------------------|
| LBSS84DW1T1G S-LBSS84DW1T1G | PD | 3000 Tape & Reel |
| LBSS84DW1T1G S-LBSS84DW1T1G | PD | 10000 Tape & Reel |

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ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

| Characteristic | Symbol | Min | Typ | Max | Unit |
|----------------|--------|-----|-----|-----|------|
|----------------|--------|-----|-----|-----|------|

OFF CHARACTERISTICS

| | | | | | |
|--|---------------|-----|---|--------------------|-----------------|
| Drain-to-Source Breakdown Voltage ($V_{GS} = 0\text{ Vdc}$, $I_D = -250\mu\text{Adc}$) | $V_{(BR)DSS}$ | -50 | - | - | Vdc |
| Zero Gate Voltage Drain Current ($V_{DS} = -25\text{ Vdc}$, $V_{GS} = 0\text{ Vdc}$) ($V_{DS} = -50\text{ Vdc}$, $V_{GS} = 0\text{ Vdc}$) ($V_{DS} = -50\text{ Vdc}$, $V_{GS} = 0\text{ Vdc}$, $T_J = 125^\circ\text{C}$) | I_{DSS} | - | - | -0.1 -15 -60 | μAdc |
| Gate-Body Leakage Current ($V_{GS} = \pm 20\text{ Vdc}$, $V_{DS} = 0\text{ Vdc}$) | I_{GSS} | - | - | ± 100 | nAdc |

ON CHARACTERISTICS (Note 1.)

| | | | | | |
|---|--------------|------|-----|------|------|
| Gate-Source Threshold Voltage ($V_{DS} = V_{GS}$, $I_D = -250\mu\text{Adc}$) | $V_{GS(th)}$ | -0.8 | - | -2.0 | Vdc |
| Static Drain-to-Source On-Resistance ($V_{GS} = -5.0\text{ Vdc}$, $I_D = -100\text{ mAdc}$) | $r_{DS(on)}$ | - | 5.0 | 10 | Ohms |

DYNAMIC CHARACTERISTICS

| | | | | | | |
|----------------------|--------------------------------|-----------|---|----|---|----|
| Input Capacitance | ($V_{DS} = -5.0\text{ Vdc}$) | C_{iss} | - | 42 | - | pF |
| Output Capacitance | ($V_{DS} = -5.0\text{ Vdc}$) | C_{oss} | - | 20 | - | |
| Transfer Capacitance | ($V_{DG} = -5.0\text{ Vdc}$) | C_{rss} | - | 4 | - | |

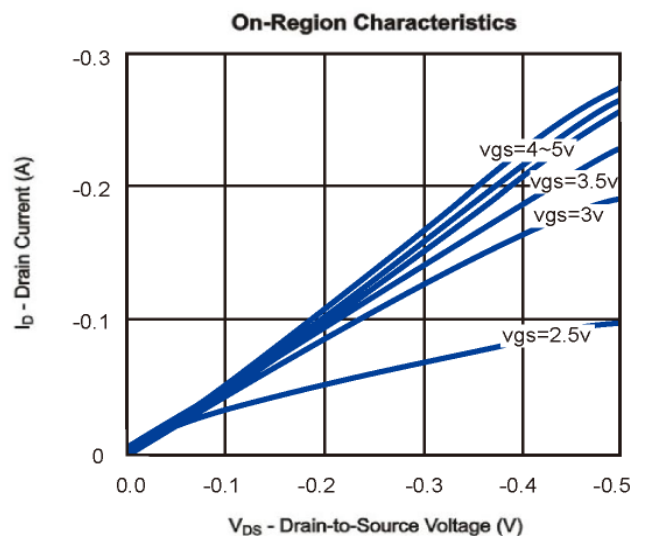
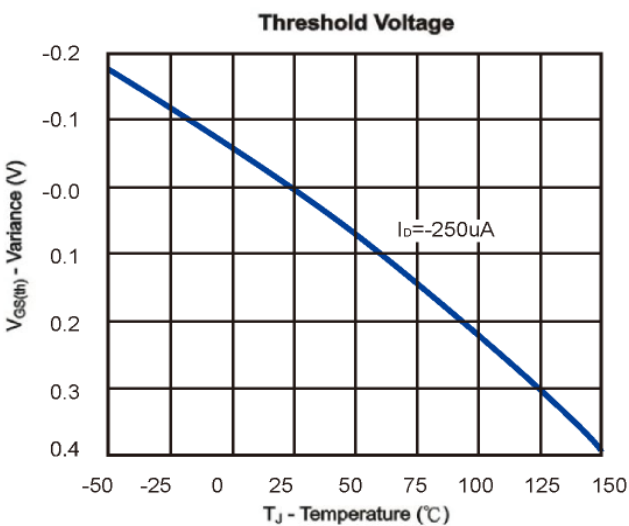
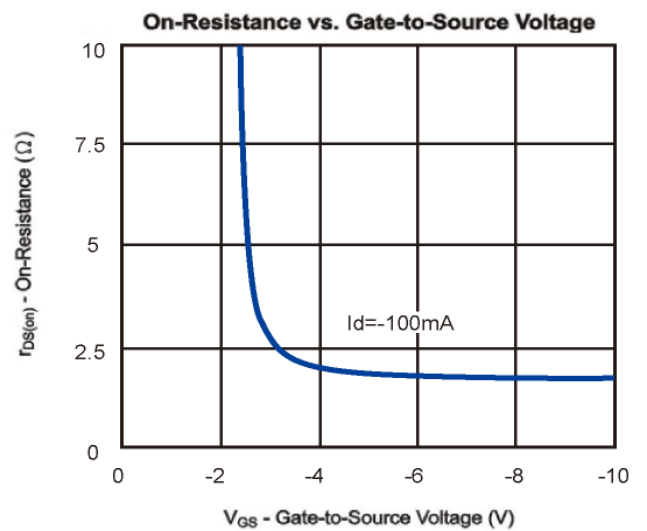
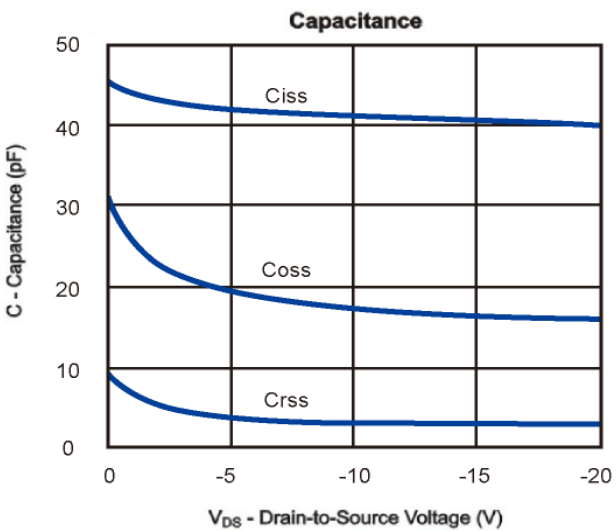
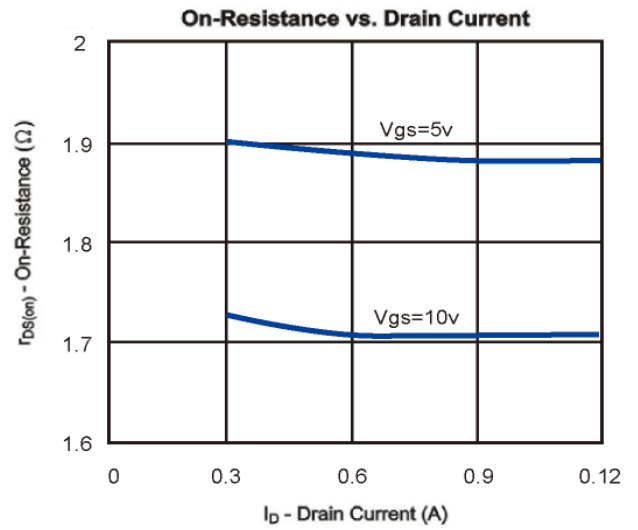
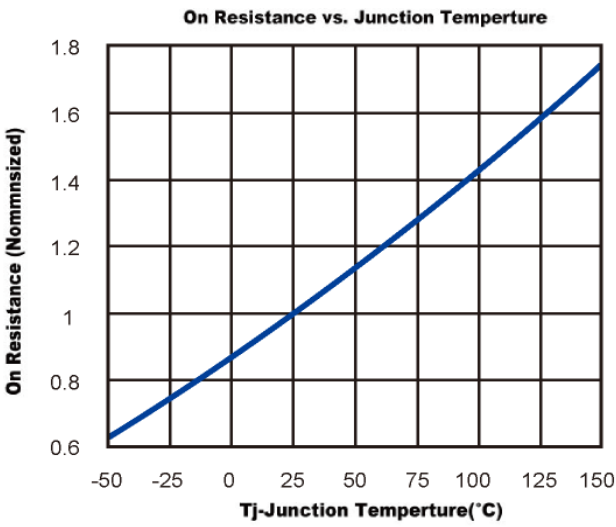
SWITCHING CHARACTERISTICS (Note 2.)

| | | | | | | |
|---------------------|--|--------------|---|------|---|----|
| Turn-On Delay Time | $(V_{DS} = -15\text{ V}$, $V_{GS} = -10\text{ V}$ $R_L = 50\ \Omega$, $R_G = 25\ \Omega)$ | $t_{d(on)}$ | - | 16.7 | - | ns |
| Rise Time | | t_r | - | 8.6 | - | |
| Turn-Off Delay Time | | $t_{d(off)}$ | - | 17.9 | - | |
| Fall Time | | t_f | - | 5.3 | - | |
| Gate Charge | | Q_T | - | 6000 | - | pC |

1. Pulse Test: Pulse Width $\leq 300\ \mu\text{s}$, Duty Cycle $\leq 2\%$.
2. Switching characteristics are independent of operating junction temperature.

LBSS84DW1T1G , S-LBSS84DW1T1G

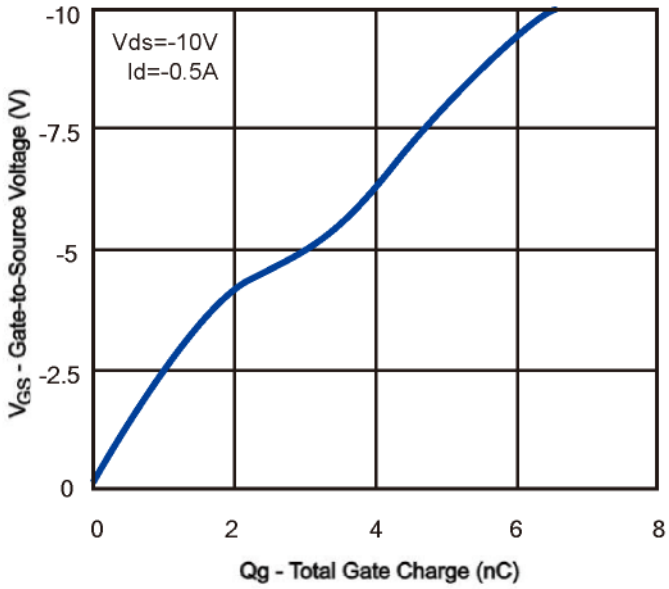
Typical Characteristics (TA =25°C Noted)



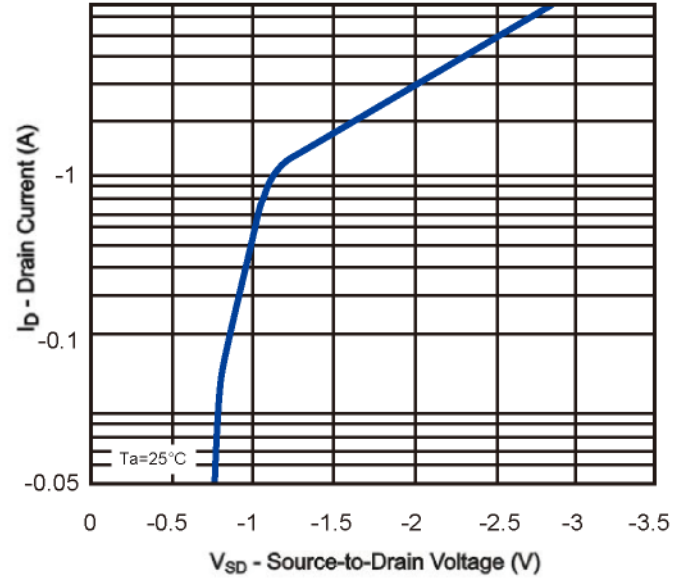
LBSS84DW1T1G , S-LBSS84DW1T1G

Typical Characteristics (T =25°C Noted)

Gate Charge

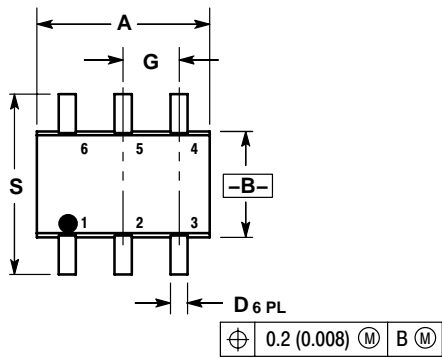


On-Resistance vs. Drain Current



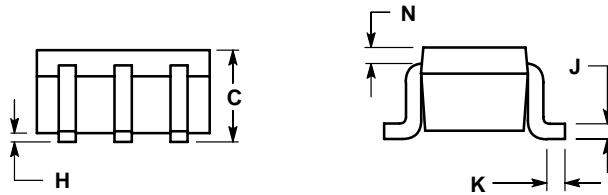
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SC-88 (SOT-363)



- NOTES:
 1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: INCH.
 3. 419B-01 OBSOLETE, NEW STANDARD 419B-02.

| DIM | INCHES | | MILLIMETERS | |
|-----|--------|-------|-------------|------|
| | MIN | MAX | MIN | MAX |
| A | 0.071 | 0.087 | 1.80 | 2.20 |
| B | 0.045 | 0.053 | 1.15 | 1.35 |
| C | 0.031 | 0.043 | 0.80 | 1.10 |
| D | 0.004 | 0.012 | 0.10 | 0.30 |
| G | 0.026 | BSC | 0.65 | BSC |
| H | --- | 0.004 | --- | 0.10 |
| J | 0.004 | 0.010 | 0.10 | 0.25 |
| K | 0.004 | 0.012 | 0.10 | 0.30 |
| N | 0.008 | REF | 0.20 | REF |
| S | 0.079 | 0.087 | 2.00 | 2.20 |



SOLDERING FOOTPRINT*

