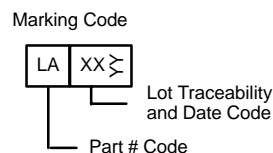
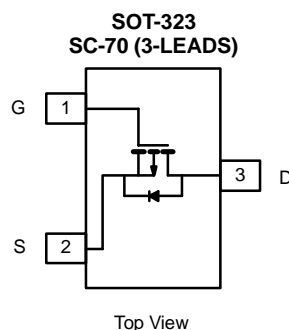




SI1303DL

| PRODUCT SUMMARY | | |
|---------------------|----------------------------------|--------------------|
| V _{DS} (V) | r _{DS(on)} (Ω) | I _D (A) |
| -20 | 0.430 @ V _{GS} = -4.5 V | -0.72 |
| | 0.480 @ V _{GS} = -3.6 V | -0.68 |
| | 0.700 @ V _{GS} = -2.5 V | -0.56 |



| ABSOLUTE MAXIMUM RATINGS (T _A = 25 °C UNLESS OTHERWISE NOTED) | | | | | |
|--|-----------------------------------|------------------------|--------------|-------|---|
| Parameter | Symbol | 5 secs | Steady State | Unit | |
| Drain-Source Voltage | V _{DS} | -20 | | V | |
| Gate-Source Voltage | V _{GS} | ± 12 | | | |
| Continuous Drain Current (T _J = 150 °C) ^a | I _D | T _A = 25 °C | -0.72 | -0.67 | A |
| | | T _A = 70 °C | -0.58 | -0.54 | |
| Pulsed Drain Current | I _{DM} | -2.5 | | | |
| Continuous Diode Current (Diode Conduction) ^a | I _S | -0.28 | -0.24 | | |
| Maximum Power Dissipation ^a | P _D | T _A = 25 °C | 0.34 | 0.29 | W |
| | | T _A = 70 °C | 0.22 | 0.19 | |
| Operating Junction and Storage Temperature Range | T _J , T _{stg} | -55 to 150 | | °C | |

| THERMAL RESISTANCE RATINGS | | | | | |
|--|-------------------|--------------|---------|------|------|
| Parameter | Symbol | Typical | Maximum | Unit | |
| Maximum Junction-to-Ambient ^a | R _{thJA} | t ≤ 5 sec | 315 | 375 | °C/W |
| | | Steady State | 360 | 430 | |
| Maximum Junction-to-Foot (Drain) | R _{thJF} | 285 | 340 | | |

Notes

a. Surface Mounted on 1" x 1" FR4 Board.



SI1303DL

| SPECIFICATIONS (T _J = 25 °C UNLESS OTHERWISE NOTED) | | | | | | |
|--|---------------------|--|------|-------|-------|------|
| Parameter | Symbol | Test Condition | Min | Typ | Max | Unit |
| Static | | | | | | |
| Gate Threshold Voltage | V _{GS(th)} | V _{DS} = V _{GS} , I _D = -250 μA | -0.6 | | | V |
| Gate-Body Leakage | I _{GSS} | V _{DS} = 0 V, V _{GS} = ±12 V | | | ±100 | nA |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} = -20 V, V _{GS} = 0 V | | | -1 | μA |
| | | V _{DS} = -20 V, V _{GS} = 0 V, T _J = 70 °C | | | -5 | |
| On-State Drain Current ^a | I _{D(on)} | V _{DS} = -5 V, V _{GS} = -4.5 V | -2.5 | | | A |
| Drain-Source On-State Resistance ^a | r _{DS(on)} | V _{GS} = -4.5 V, I _D = -1 A | | 0.360 | 0.430 | Ω |
| | | V _{GS} = -3.6 V, I _D = -0.7 A | | 0.400 | 0.480 | |
| | | V _{GS} = -2.5 V, I _D = -0.3 A | | 0.560 | 0.700 | |
| Forward Transconductance ^a | g _{fs} | V _{DS} = -10 V, I _D = -1 A | | 1.7 | | S |
| Diode Forward Voltage ^a | V _{SD} | I _S = -0.3 A, V _{GS} = 0 V | | | -1.2 | V |
| Dynamic^b | | | | | | |
| Total Gate Charge | Q _g | V _{DS} = -10 V, V _{GS} = -4.5 V, I _D = -1 A | | 1.7 | 2.2 | nC |
| Gate-Source Charge | Q _{gs} | | | 0.38 | | |
| Gate-Drain Charge | Q _{gd} | | | 0.63 | | |
| Turn-On Delay Time | t _{d(on)} | V _{DD} = -10 V, R _L = 10 Ω I _D ≅ -1 A, V _{GEN} = -4.5 V, R _G = 6 Ω | | 9 | 15 | ns |
| Rise Time | t _r | | | 31 | 45 | |
| Turn-Off Delay Time | t _{d(off)} | | | 12.5 | 20 | |
| Fall Time | t _f | | | 14 | 20 | |
| Source-Drain Reverse Recovery Time | t _{rr} | I _F = -1 A, di/dt = 100 A/μs | | 35 | 55 | |

Notes

- a. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.
- b. Guaranteed by design, not subject to production testing.