



CST3134 N-Ch 20V Fast Switching MOSFETs

- ★ Green Device Available
- ★ Super Low Gate Charge
- ★ Excellent Cdv/dt effect decline
- ★ Advanced high cell density Trench technology



CST3134 Product Summary

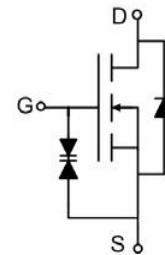
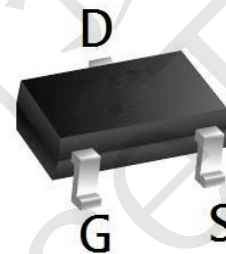
| BVDSS | RDSON | ID |
|-------|-------|-------|
| 20V | 145mΩ | 0.75A |

CST3134 Description

The CST3134 is the high cell density trenched N-ch MOSFETs, which provides excellent RDSON and efficiency for most of the small power switching and load switch applications.

The CST3134 meet the RoHS and Green Product requirement with full function reliability approved.

CST3134 SOT-523-3L top view



CST3134 Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

| Symbol | Parameter | Max. | Units | |
|-----------------------------------|---|------------------------|-------|---|
| V _{DSS} | Drain-Source Voltage | 20 | V | |
| V _{GSS} | Gate-Source Voltage | ±10 | V | |
| I _D | Continuous Drain Current | T _A = 25°C | 0.75 | A |
| | | T _A = 100°C | 0.5 | A |
| I _{DM} | Pulsed Drain Current ^{note1} | 3 | A | |
| P _D | Power Dissipation | T _A = 25°C | 0.17 | W |
| R _{θJA} | Thermal Resistance, Junction to Case | 735 | °C/W | |
| T _J , T _{STG} | Operating and Storage Temperature Range | -55 to +150 | °C | |



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CST3134 Electrical Characteristics (T_J=25°C unless otherwise specified)

| Symbol | Parameter | Test Condition | Min. | Typ. | Max. | Units |
|---|---|--|------|------|------|-------|
| Off Characteristic | | | | | | |
| V _{(BR)DSS} | Drain-Source Breakdown Voltage | V _{GS} =0V, I _D =250μA | 20 | - | - | V |
| I _{DSS} | Zero Gate Voltage Drain Current | V _{DS} =20V, V _{GS} =0V, | - | - | 1 | μA |
| I _{GSS} | Gate to Body Leakage Current | V _{DS} =0V, V _{GS} = ±10V | - | - | ±10 | uA |
| On Characteristics | | | | | | |
| V _{GS(th)} | Gate Threshold Voltage | V _{DS} =V _{GS} , I _D =250μA | 0.4 | 0.7 | 1.0 | V |
| R _{DS(on)} | Static Drain-Source on-Resistance <small>note2</small> | V _{GS} =4.5V, I _D =0.5A | - | 145 | 190 | mΩ |
| | | V _{GS} =2.5V, I _D =0.4A | - | 225 | 315 | |
| Dynamic Characteristics | | | | | | |
| C _{iss} | Input Capacitance | V _{DS} =10V, V _{GS} =0V, f=1.0MHz | - | 60 | - | pF |
| C _{oss} | Output Capacitance | | - | 22 | - | pF |
| C _{rss} | Reverse Transfer Capacitance | | - | 12 | - | pF |
| Q _g | Total Gate Charge | V _{DS} =10V, I _D =0.75A, V _{GS} =4.5V | - | 1 | - | nC |
| Q _{gs} | Gate-Source Charge | | - | 0.28 | - | nC |
| Q _{gd} | Gate-Drain("Miller") Charge | | - | 0.22 | - | nC |
| Switching Characteristics | | | | | | |
| t _{d(on)} | Turn-on Delay Time | V _{DS} =10V, I _D =0.5A, R _{GEN} =10Ω, V _{GS} =4.5V | - | 2 | - | ns |
| t _r | Turn-on Rise Time | | - | 19 | - | ns |
| t _{d(off)} | Turn-off Delay Time | | - | 10 | - | ns |
| t _f | Turn-off Fall Time | | - | 23 | - | ns |
| Drain-Source Diode Characteristics and Maximum Ratings | | | | | | |
| I _S | Maximum Continuous Drain to Source Diode Forward Current | | - | - | 0.75 | A |
| I _{SM} | Maximum Pulsed Drain to Source Diode Forward Current | | - | - | 3 | A |
| V _{SD} | Drain to Source Diode Forward Voltage | V _{GS} =0V, I _S =0.75A | - | - | 1.2 | V |

Notes:1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

2. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%



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CST3134 Typical Performance Characteristics

Figure 1: Output Characteristics

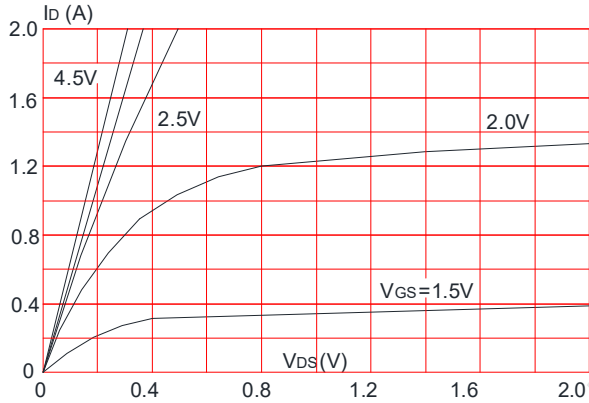


Figure 2: Typical Transfer Characteristics

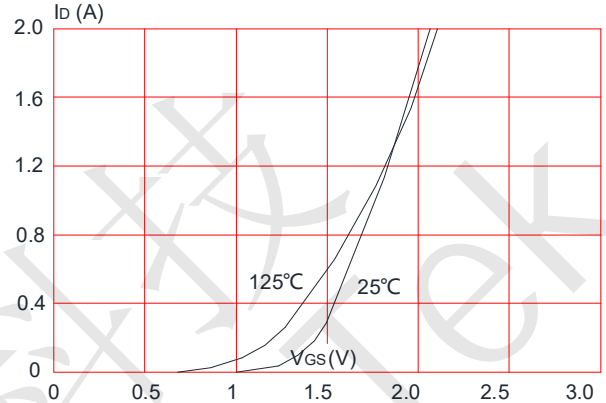


Figure 3: On-resistance vs. Drain Current

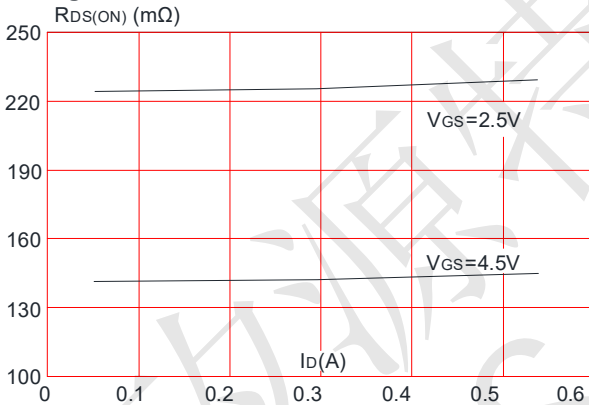


Figure 4: Body Diode Characteristics

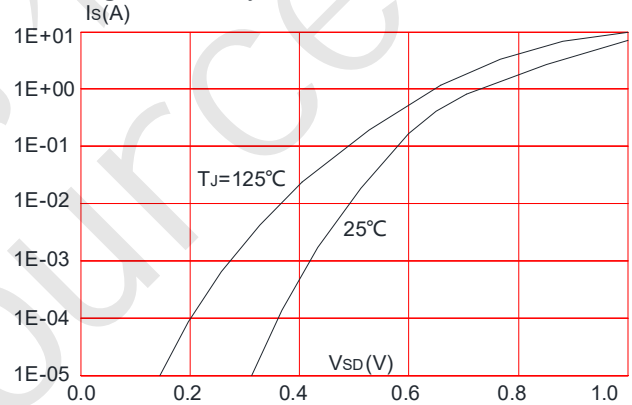


Figure 5: Gate Charge Characteristics

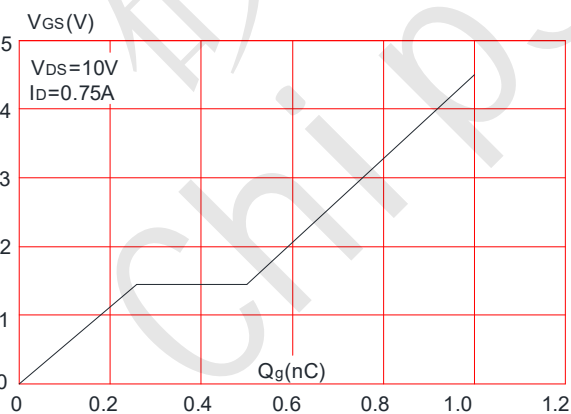
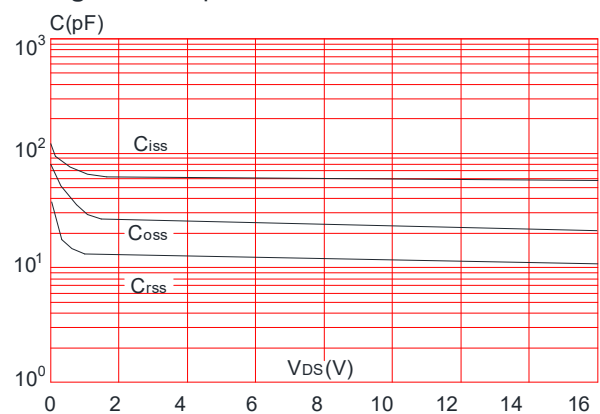


Figure 6: Capacitance Characteristics





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Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

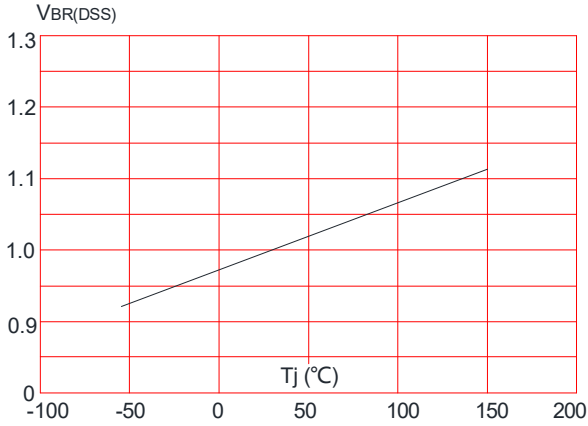


Figure 8: Normalized on Resistance vs. Junction Temperature

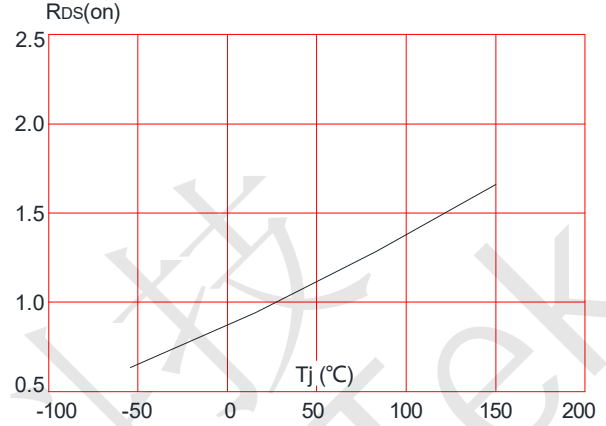


Figure 9: Maximum Safe Operating Area

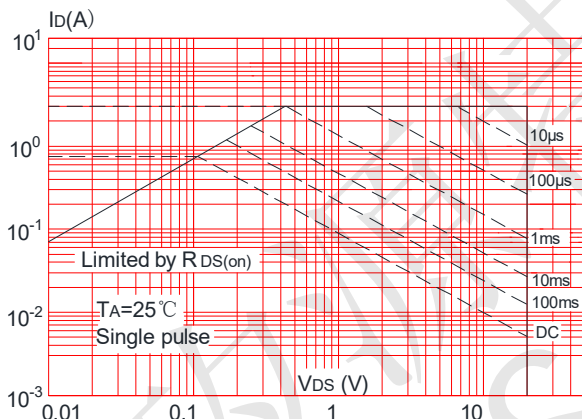


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

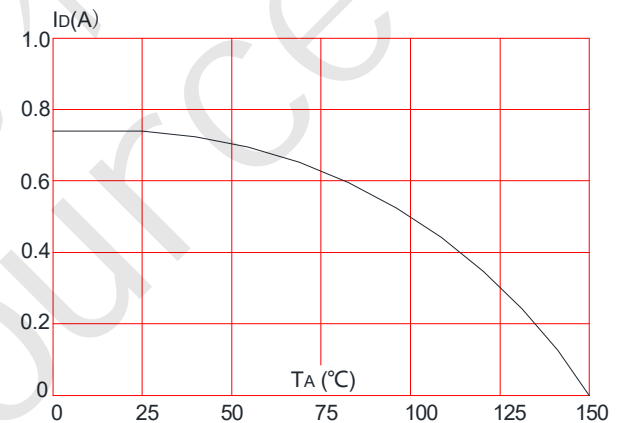
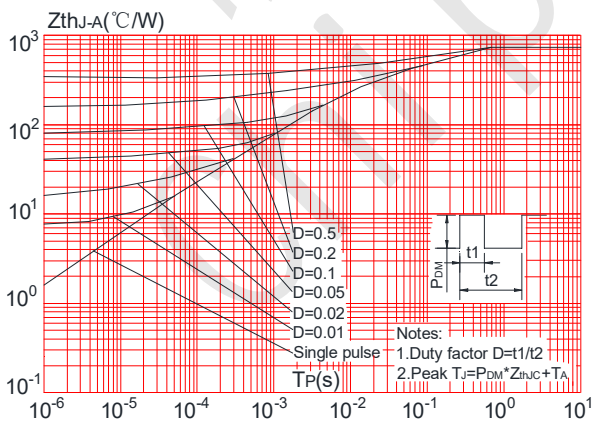


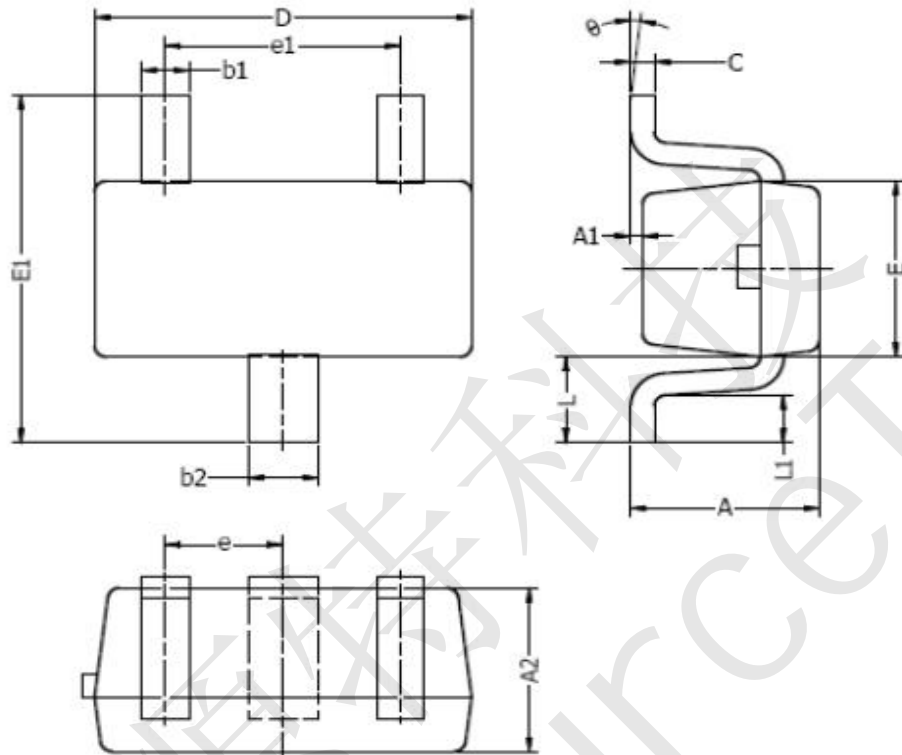
Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient





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CST3134 Package Mechanical Data-SOT-523-3L



| DIM | MILLIMETERS | | INCHES | |
|-------|-------------|------|------------|-------|
| | MIN | MAX | MIN | MAX |
| A | 0.70 | 0.90 | 0.028 | 0.035 |
| A1 | 0.00 | 0.10 | 0.000 | 0.004 |
| A2 | 0.70 | 0.80 | 0.028 | 0.031 |
| b1 | 0.15 | 0.25 | 0.006 | 0.010 |
| b2 | 0.25 | 0.35 | 0.010 | 0.014 |
| c | 0.10 | 0.20 | 0.004 | 0.008 |
| D | 1.50 | 1.70 | 0.059 | 0.067 |
| E | 0.70 | 0.90 | 0.028 | 0.035 |
| E1 | 1.45 | 1.75 | 0.057 | 0.069 |
| e | 0.50 TYP. | | 0.020 TYP. | |
| e1 | 0.90 | 1.10 | 0.035 | 0.043 |
| L | 0.40 REF. | | 0.016 REF. | |
| L1 | 0.10 | 0.30 | 0.004 | 0.012 |
| theta | 0° | 8° | 0° | 8° |

NOTES:

1. Above package outline conforms to JEITA EAJ ED-7500A SC-75A.
2. Dimensions are exclusive of Burrs, Mold Flash & Tie Bar extrusions.