



CST4828 Dual N-Ch 60V Fast Switching MOSFETs

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

CST4828 Product Summary



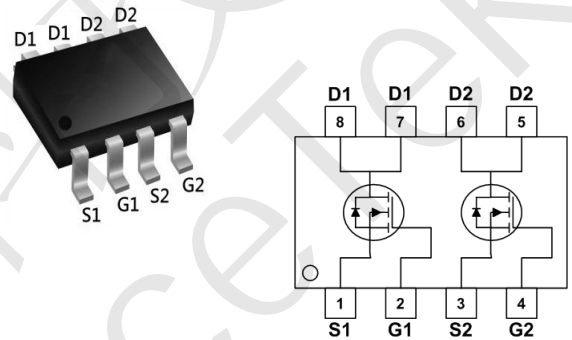
| BVDSS | RDSON | ID |
|-------|-------|------|
| 60V | 28mΩ | 6.0A |

CST4828 Description

The CST4828 is the high cell density trenched N-ch MOSFETs, which provide excellent RDSON and gate charge for most of the synchronous buck converter applications.

The CST4828 meet the RoHS and Green Product requirement 100% EAS guaranteed with full function reliability approved.

CST4828 SOP8 Pin Configuration



CST4828 Absolute Maximum Ratings

| Symbol | Parameter | Rating | Units |
|----------------------|--|------------|------------|
| V_{DS} | Drain-Source Voltage | 60 | V |
| V_{GS} | Gate-Source Voltage | ± 20 | V |
| $I_D@T_A=25^\circ C$ | Continuous Drain Current, $V_{GS} @ 10V^1$ | 6.0 | A |
| $I_D@T_A=70^\circ C$ | Continuous Drain Current, $V_{GS} @ 10V^1$ | 4.5 | A |
| I_{DM} | Pulsed Drain Current ² | 22 | A |
| EAS | Single Pulse Avalanche Energy ³ | 22 | mJ |
| I_{AS} | Avalanche Current | 23 | A |
| $P_D@T_A=25^\circ C$ | Total Power Dissipation ⁴ | 1.5 | W |
| T_{STG} | Storage Temperature Range | -55 to 150 | $^\circ C$ |
| T_J | Operating Junction Temperature Range | -55 to 150 | $^\circ C$ |

CST4828 Thermal Data

| Symbol | Parameter | Typ. | Max. | Unit |
|-----------------|--|------|------|--------------|
| $R_{\theta JA}$ | Thermal Resistance Junction-ambient ¹ | --- | 85 | $^\circ C/W$ |
| $R_{\theta JC}$ | Thermal Resistance Junction-Case ¹ | --- | 25 | $^\circ C/W$ |



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CST4828 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 | 60 | - | - | V |
| I _{DSS} | Zero Gate Voltage Drain Current | V _{DS} =60V, V _{GS} = 0V, | - | - | 1.0 | μA |
| I _{GSS} | Gate to Body Leakage Current | V _{DS} =0V, V _{GS} = ±20V | - | - | ±100 | nA |
| On Characteristics | | | | | | |
| V _{GS(th)} | Gate Threshold Voltage | V _{DS} =V _{GS} , I _D =250μA | 1.0 | 1.6 | 2.5 | V |
| R _{DS(on)} | Static Drain-Source on-Resistance <small>note3</small> | V _{GS} =10V, I _D =5A | - | 28 | 40 | mΩ |
| | | V _{GS} =4.5V, I _D =3A | - | 36 | 50 | |
| Dynamic Characteristics | | | | | | |
| C _{iss} | Input Capacitance | V _{DS} =25V, V _{GS} =0V, f=1.0MHz | - | 1148 | - | pF |
| C _{oss} | Output Capacitance | | - | 58.5 | - | pF |
| C _{rss} | Reverse Transfer Capacitance | | - | 49.4 | - | pF |
| Q _g | Total Gate Charge | V _{DS} =30V, I _D =2.5A, V _{GS} =10V | - | 20.3 | - | nC |
| Q _{gs} | Gate-Source Charge | | - | 3.7 | - | nC |
| Q _{gd} | Gate-Drain("Miller") Charge | | - | 5.3 | - | nC |
| Switching Characteristics | | | | | | |
| t _{d(on)} | Turn-on Delay Time | V _{DS} =30V, I _D =5A, R _G =1.8Ω, V _{GS} =10V | - | 7.6 | - | ns |
| t _r | Turn-on Rise Time | | - | 20 | - | ns |
| t _{d(off)} | Turn-off Delay Time | | - | 15 | - | ns |
| t _f | Turn-off Fall Time | | - | 24 | - | ns |
| Drain-Source Diode Characteristics and Maximum Ratings | | | | | | |
| I _S | Maximum Continuous Drain to Source Diode Forward Current | | - | - | 5 | A |
| I _{SM} | Maximum Pulsed Drain to Source Diode Forward Current | | - | - | 20 | A |
| V _{SD} | Drain to Source Diode Forward Voltage | V _{GS} =0V, I _S =5A | - | - | 1.2 | V |
| trr | Body Diode Reverse Recovery Time | I _F =5A, di/dt=100A/μs | - | 29 | - | ns |
| Q _{rr} | Body Diode Reverse Recovery Charge | | - | 43 | - | nC |

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

2. EAS condition : T_J=25°C, V_{DD}=30V, V_G=10V, L=0.5mH, R_G=25Ω, I_{AS}=8.7A

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



CST4828 Typical Performance Characteristics

Figure 1: Output Characteristics

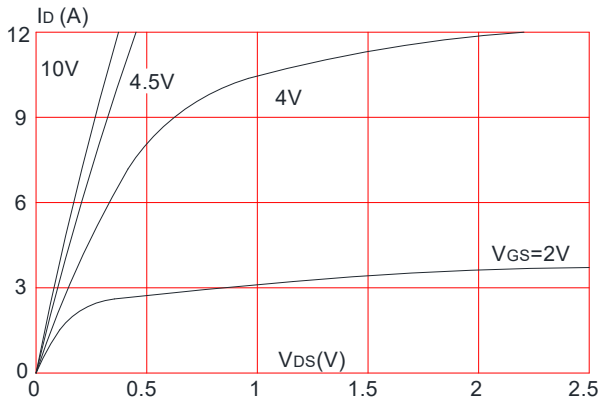


Figure 2: Typical Transfer Characteristics

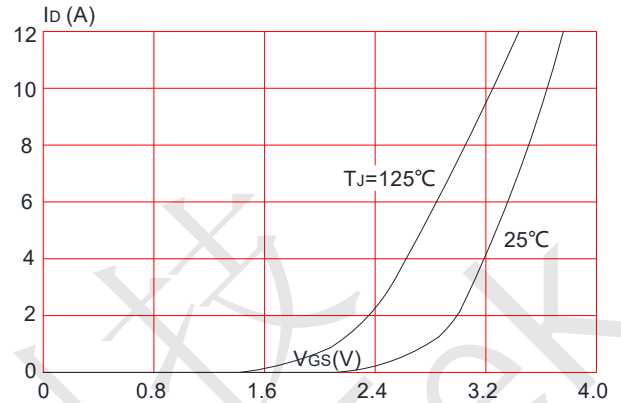


Figure 3: On-resistance vs. Drain Current

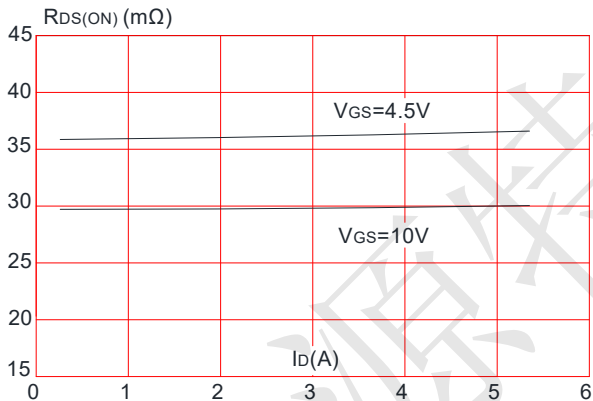


Figure 4: Body Diode Characteristics

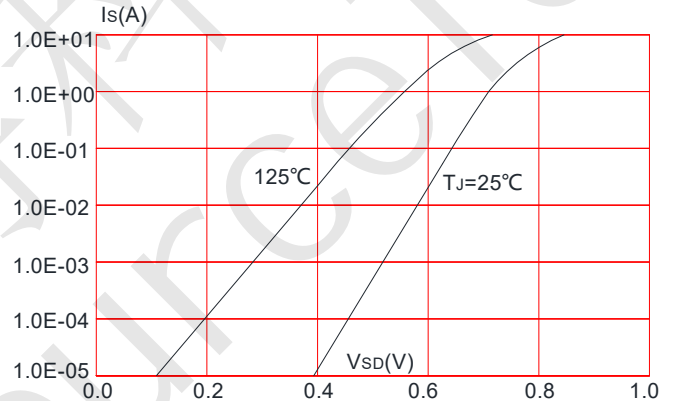


Figure 5: Gate Charge Characteristics

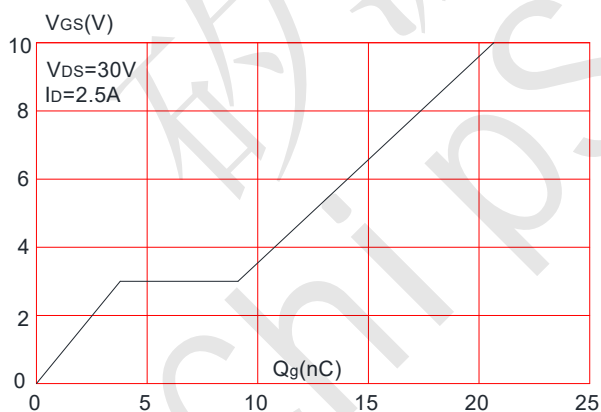
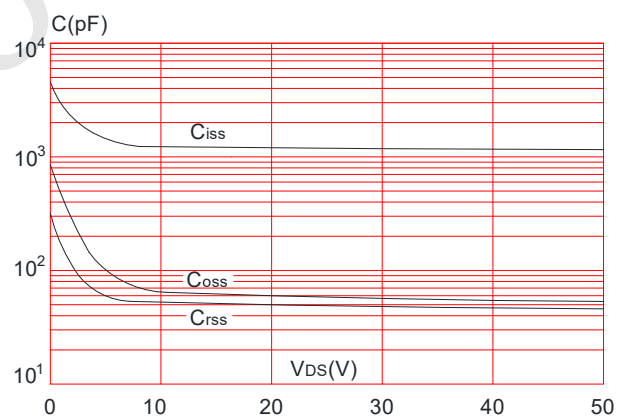


Figure 6: Capacitance Characteristics





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Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

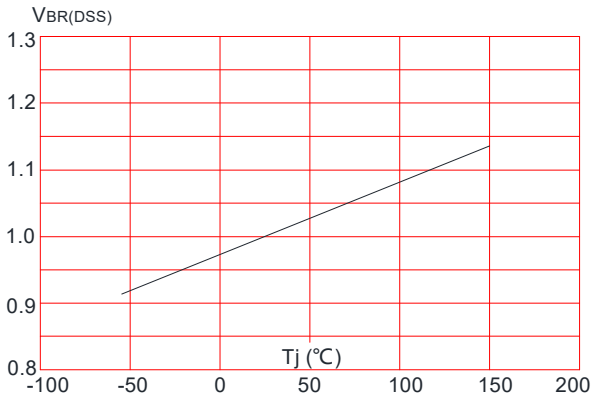


Figure 8: Normalized on Resistance vs. Junction Temperature

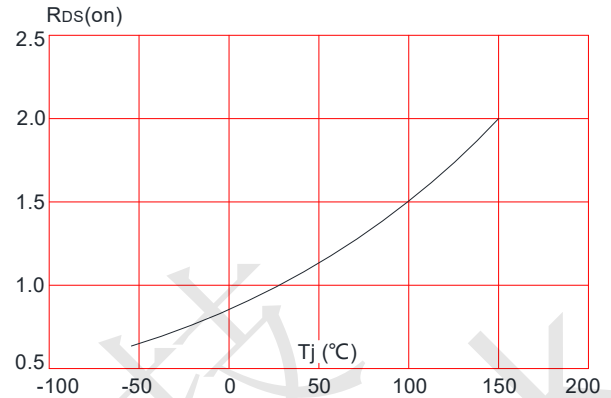


Figure 9: Maximum Safe Operating Area

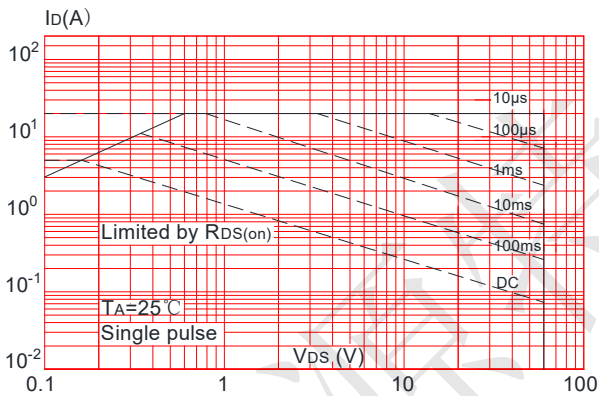


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

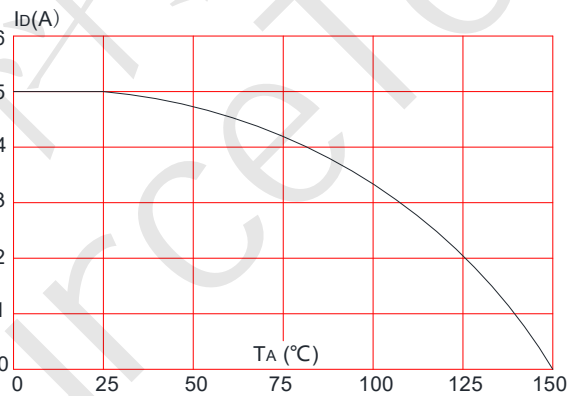
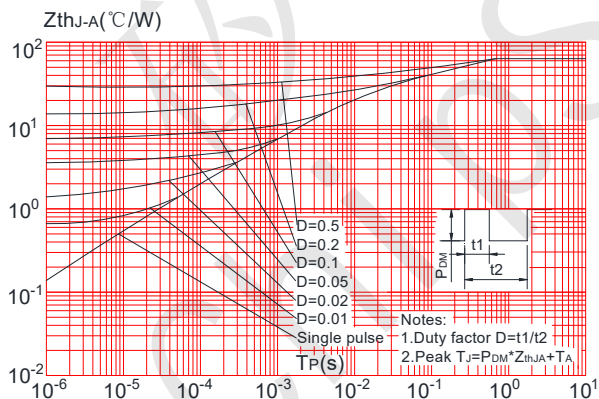
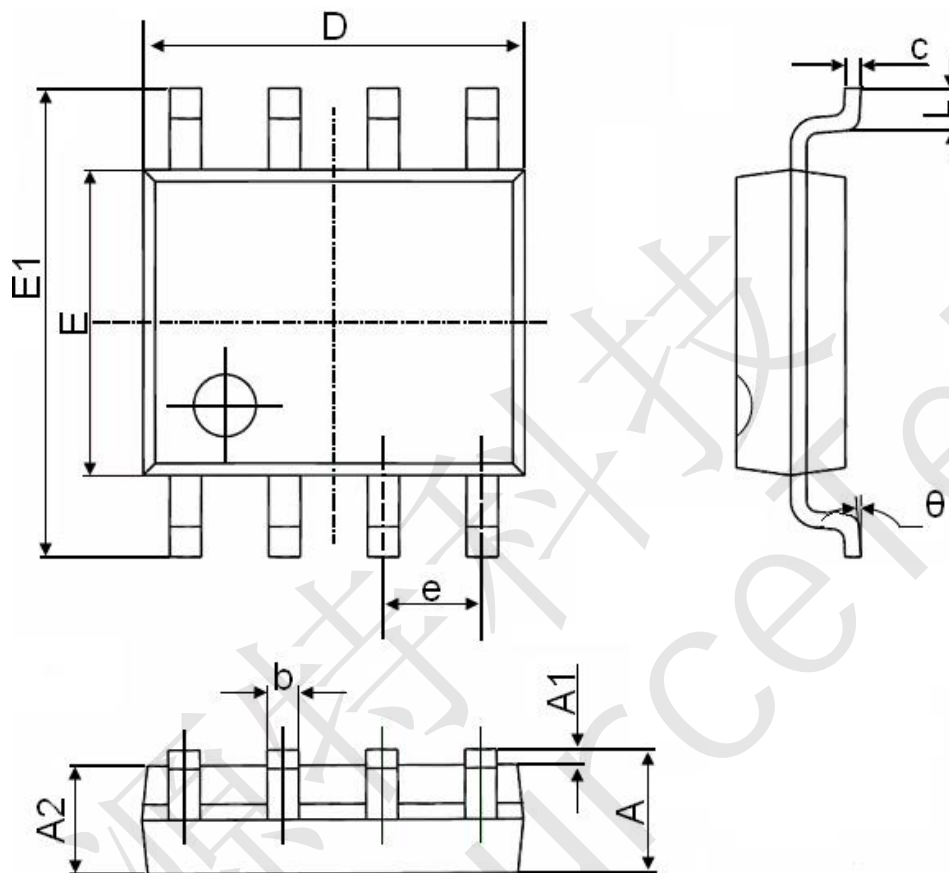


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient





CST4828 SOP-8 Package Information



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min. | Max. | Min. | Max. |
| A | 1.350 | 1.750 | 0.053 | 0.069 |
| A1 | 0.100 | 0.250 | 0.004 | 0.010 |
| A2 | 1.350 | 1.550 | 0.053 | 0.061 |
| b | 0.330 | 0.510 | 0.013 | 0.020 |
| c | 0.170 | 0.250 | 0.006 | 0.010 |
| D | 4.700 | 5.100 | 0.185 | 0.200 |
| E | 3.800 | 4.000 | 0.150 | 0.157 |
| E1 | 5.800 | 6.200 | 0.228 | 0.244 |
| e | 1.270(BSC) | | 0.050(BSC) | |
| L | 0.400 | 1.270 | 0.016 | 0.050 |
| θ | 0° | 8° | 0° | 8° |