



CST6800B Dual N-Ch 30V Fast Switching MOSFETs



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

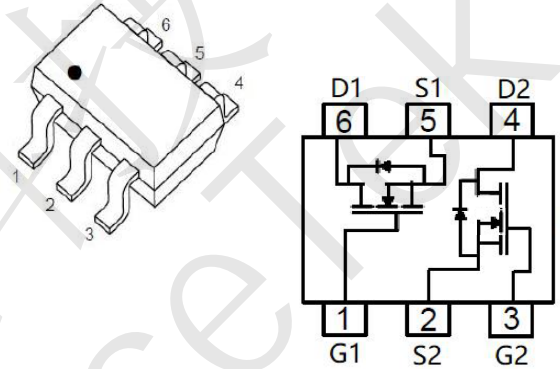
CST6800B Product Summary

| BVDSS | R _{DS(ON)} | ID |
|-------|---------------------|-----|
| 30V | 29mΩ | 4.5 |

CST6800B Description

The CST6800B uses advanced trench technology and design to provide excellent RDS(ON) with low gate charge. It can be used in a wide variety of applications.

CST6800B Dual SOT23-6L Pin Configuration



CST6800B Absolute Maximum Ratings

| Symbol | Parameter | Rating | Units |
|--------------------------------------|---|------------|-------|
| V _{DS} | Drain-Source Voltage | 30 | V |
| V _{GS} | Gate-Source Voltage | ±12 | V |
| I _D @T _A =25°C | Continuous Drain Current, V _{GS} @ 4.5V ¹ | 4.5 | A |
| I _D @T _A =70°C | Continuous Drain Current, V _{GS} @ 4.5V ¹ | 2.8 | A |
| I _{DM} | Pulsed Drain Current ² | 15 | A |
| P _D @T _A =25°C | Total Power Dissipation ³ | 1.25 | W |
| T _{STG} | Storage Temperature Range | -55 to 150 | °C |
| T _J | Operating Junction Temperature Range | -55 to 150 | °C |

CST6800B Thermal Data

| Symbol | Parameter | Typ. | Max. | Unit |
|------------------|--|------|------|------|
| R _{θJA} | Thermal Resistance Junction-ambient ¹ | --- | 125 | °C/W |
| R _{θJC} | Thermal Resistance Junction-Case ¹ | -- | - | °C/W |



CST6800B 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 | 30 | - | - | V |
| I _{DSS} | Zero Gate Voltage Drain Current | V _{DS} =30V, 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 | 1.5 | 2.5 | V |
| R _{DS(on)} | Static Drain-Source on-Resistance note2 | V _{GS} =10V, I _D =4A | - | 29 | 38 | mΩ |
| | | V _{GS} =4.5V, I _D =3A | - | 45 | 65 | |
| Dynamic Characteristics | | | | | | |
| C _{iss} | Input Capacitance | V _{DS} =15V, V _{GS} =0V, f=1.0MHz | - | 233 | - | pF |
| C _{oss} | Output Capacitance | | - | 44 | - | pF |
| C _{rss} | Reverse Transfer Capacitance | | - | 33 | - | pF |
| Q _g | Total Gate Charge | V _{DS} =15V, I _D =2A, V _{GS} =10V | - | 3 | - | nC |
| Q _{gs} | Gate-Source Charge | | - | 0.5 | - | nC |
| Q _{gd} | Gate-Drain("Miller") Charge | | - | 0.8 | - | nC |
| Switching Characteristics | | | | | | |
| t _{d(on)} | Turn-on Delay Time | V _{DS} =15V, I _D =4A, R _{GEN} =3Ω, V _{GS} =10V | - | 4 | - | ns |
| t _r | Turn-on Rise Time | | - | 2.1 | - | ns |
| t _{d(off)} | Turn-off Delay Time | | - | 15 | - | ns |
| t _f | Turn-off Fall Time | | - | 3.2 | - | ns |
| Drain-Source Diode Characteristics and Maximum Ratings | | | | | | |
| I _S | Maximum Continuous Drain to Source Diode Forward Current | | - | - | 4.5 | A |
| I _{SM} | Maximum Pulsed Drain to Source Diode Forward Current | | - | - | 16 | A |
| V _{SD} | Drain to Source Diode Forward Voltage | V _{GS} =0V, I _S =4A | - | - | 1.2 | V |

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

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



CST6800B Typical Performance Characteristics

Figure 1: Output Characteristics

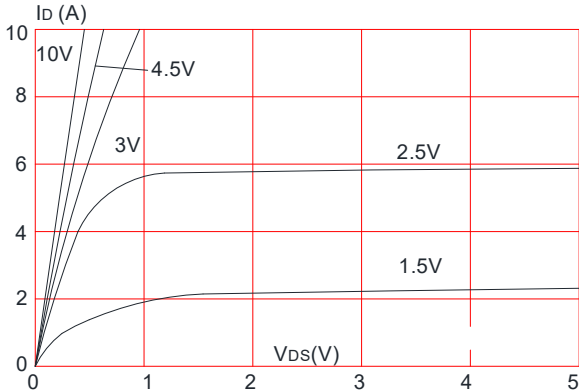


Figure 2: Typical Transfer Characteristics

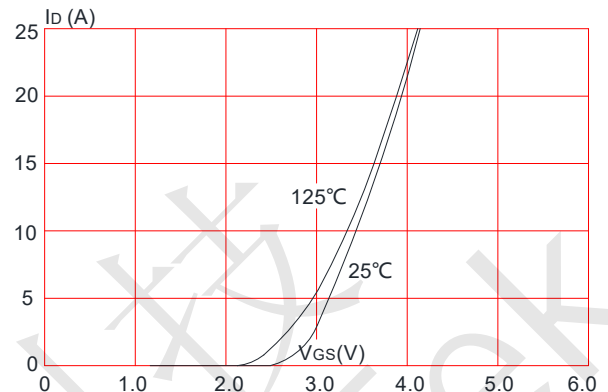


Figure 3: On-resistance vs. Drain Current

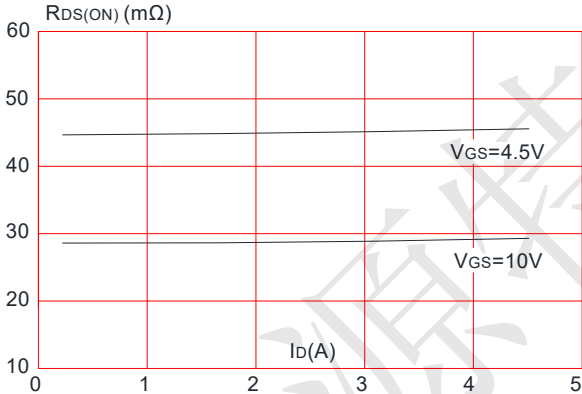


Figure 4: Body Diode Characteristics

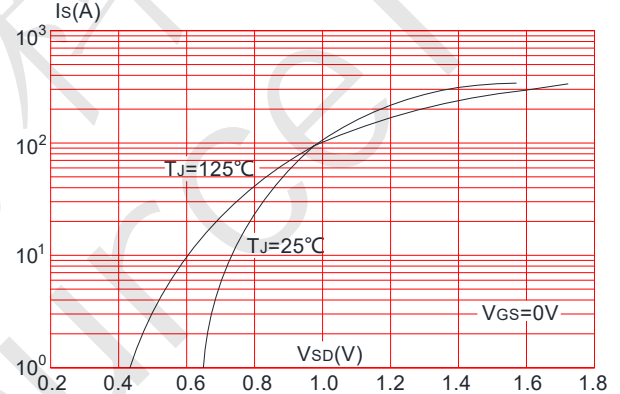


Figure 5: Gate Charge Characteristics

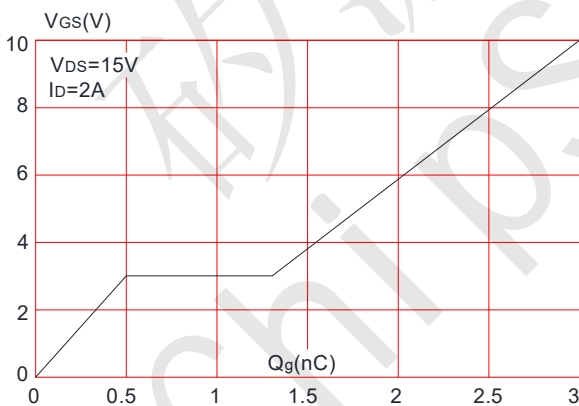
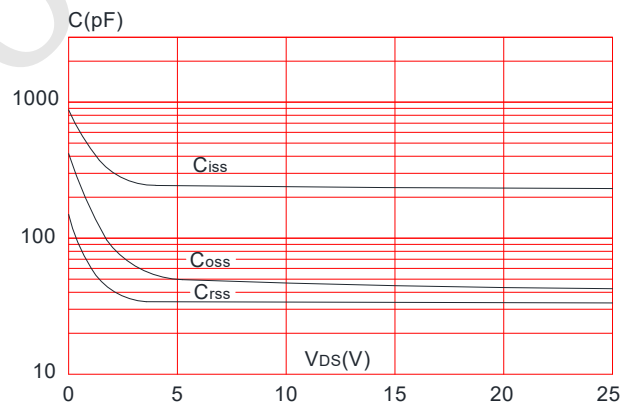


Figure 6: Capacitance Characteristics





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Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

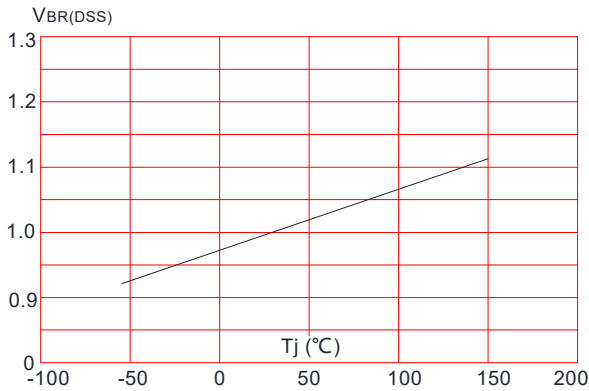


Figure 8: Normalized on Resistance vs. Junction Temperature

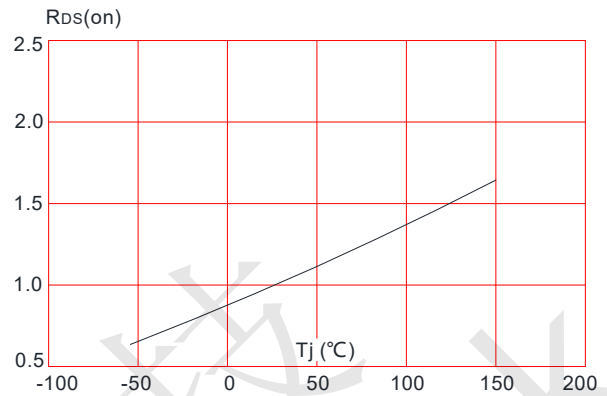


Figure 9: Maximum Safe Operating Area

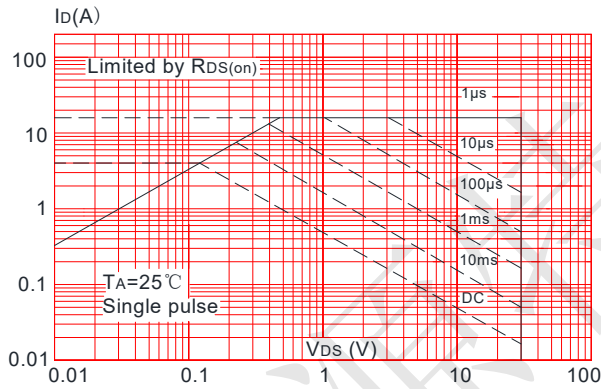


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

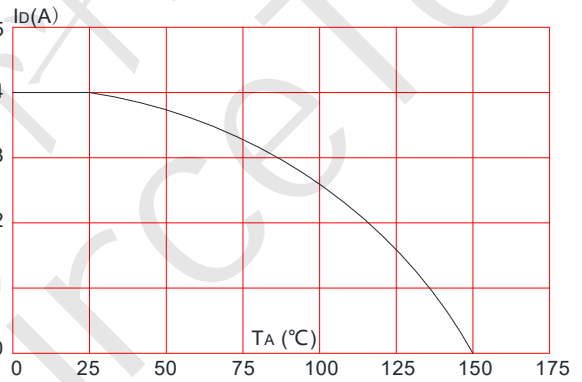
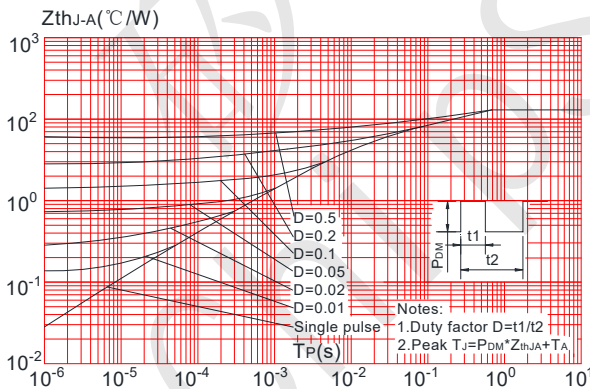
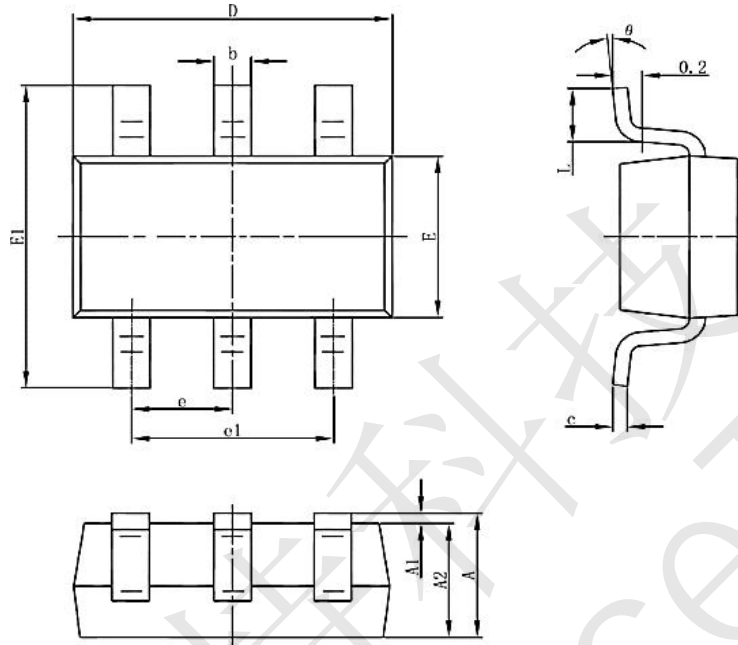


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient





CST6800B Package Mechanical Data-SOT23-6-Double



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min. | Max. | Min. | Max. |
| A | 1.050 | 1.250 | 0.041 | 0.049 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 1.050 | 1.150 | 0.041 | 0.045 |
| b | 0.300 | 0.500 | 0.012 | 0.020 |
| C | 0.100 | 0.200 | 0.004 | 0.008 |
| D | 2.820 | 3.020 | 0.111 | 0.119 |
| E | 1.500 | 1.700 | 0.059 | 0.067 |
| E1 | 2.650 | 2.950 | 0.104 | 0.116 |
| e | 0.950 (BSC) | | 0.037(BSC) | |
| e1 | 1.800 | 2.000 | 0.071 | 0.079 |
| L | 0.300 | 0.600 | 0.012 | 0.024 |
| theta | 0 | 8 | 0 | 8 |