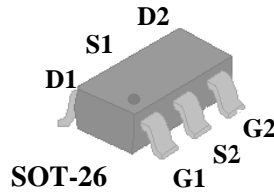




- ▼ Low Gate Charge
- ▼ Fast Switching Performance
- ▼ Surface Mount Package

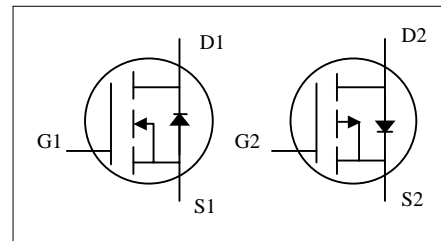


| | | |
|------|--------------|---------------|
| N-CH | BV_{DSS} | 30V |
| | $R_{DS(ON)}$ | 130m Ω |
| | I_D | 2.4A |
| P-CH | BV_{DSS} | -30V |
| | $R_{DS(ON)}$ | 250m Ω |
| | I_D | -1.8A |

Description

Advanced Power MOSFETs utilized advanced processing techniques to achieve the lowest possible on-resistance, extremely efficient and cost-effectiveness device.

The SOT-26 package is widely used for commercial surface mount applications.



Absolute Maximum Ratings

| Symbol | Parameter | Rating | | Units |
|--------------------------|---------------------------------------|------------|-----------|---------------|
| | | N-channel | P-channel | |
| V_{DS} | Drain-Source Voltage | 30 | -30 | V |
| V_{GS} | Gate-Source Voltage | ± 20 | ± 20 | V |
| $I_D @ T_A = 25^\circ C$ | Continuous Drain Current ³ | 2.4 | -1.8 | A |
| $I_D @ T_A = 70^\circ C$ | Continuous Drain Current ³ | 1.9 | -1.4 | A |
| I_{DM} | Pulsed Drain Current ¹ | 10 | -10 | A |
| $P_D @ T_A = 25^\circ C$ | Total Power Dissipation | 1.14 | | W |
| | Linear Derating Factor | 0.01 | | W/ $^\circ C$ |
| T_{STG} | Storage Temperature Range | -55 to 150 | | $^\circ C$ |
| T_J | Operating Junction Temperature Range | -55 to 150 | | $^\circ C$ |

Thermal Data

| Symbol | Parameter | Value | Unit |
|--------|---|-------|--------------|
| Rthj-a | Maximum Thermal Resistance, Junction-ambient ³ | 110 | $^\circ C/W$ |



N-CH Electrical Characteristics @T_j=25°C(unless otherwise specified)

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Units |
|---------------------|---|--|------|------|------|-------|
| BV _{DSS} | Drain-Source Breakdown Voltage | V _{GS} =0V, I _D =250uA | 30 | - | - | V |
| R _{DS(ON)} | Static Drain-Source On-Resistance ² | V _{GS} =10V, I _D =1A | - | - | 130 | mΩ |
| | | V _{GS} =4.5V, I _D =0.5A | - | - | 250 | mΩ |
| V _{GS(th)} | Gate Threshold Voltage | V _{DS} =V _{GS} , I _D =250uA | 1.2 | - | 3 | V |
| g _{fs} | Forward Transconductance | V _{DS} =10V, I _D =1A | - | 1.6 | - | S |
| I _{DSS} | Drain-Source Leakage Current (T _j =25°C) | V _{DS} =30V, V _{GS} =0V | - | - | 1 | uA |
| | Drain-Source Leakage Current (T _j =70°C) | V _{DS} =24V, V _{GS} =0V | - | - | 25 | uA |
| I _{GSS} | Gate-Source Leakage | V _{GS} =±20V | - | - | ±100 | nA |
| Q _g | Total Gate Charge ² | I _D =1.8A | - | 2.7 | 4.3 | nC |
| Q _{gs} | Gate-Source Charge | V _{DS} =10V | - | 0.9 | - | nC |
| Q _{gd} | Gate-Drain ("Miller") Charge | V _{GS} =4.5V | - | 1.2 | - | nC |
| t _{d(on)} | Turn-on Delay Time ² | V _{DS} =15V | - | 4.3 | - | ns |
| t _r | Rise Time | I _D =1A | - | 10 | - | ns |
| t _{d(off)} | Turn-off Delay Time | R _G =3.3Ω, V _{GS} =10V | - | 12 | - | ns |
| t _f | Fall Time | R _D =15Ω | - | 2.5 | - | ns |
| C _{iss} | Input Capacitance | V _{GS} =0V | - | 180 | 290 | pF |
| C _{oss} | Output Capacitance | V _{DS} =10V | - | 70 | - | pF |
| C _{rss} | Reverse Transfer Capacitance | f=1.0MHz | - | 50 | - | pF |
| R _g | Gate Resistance | f=1.0MHz | - | 1.7 | 2.6 | Ω |

Source-Drain Diode

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Units |
|-----------------|---------------------------------|---|------|------|------|-------|
| V _{SD} | Forward On Voltage ² | I _S =0.9A, V _{GS} =0V | - | - | 1.3 | V |
| t _{rr} | Reverse Recovery Time | I _S =1.8A, V _{GS} =0V | - | 16 | - | ns |
| Q _{rr} | Reverse Recovery Charge | dI/dt=100A/μs | - | 10 | - | nC |

**P-CH Electrical Characteristics @T_j=25°C(unless otherwise specified)**

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|---------------------|---|---|------|------|------|------|
| B _V DSS | Drain-Source Breakdown Voltage | V _{GS} =0V, I _D =-250uA | -30 | - | - | V |
| R _{DS(ON)} | Static Drain-Source On-Resistance | V _{GS} =-10V, I _D =-0.6A | - | - | 250 | mΩ |
| | | V _{GS} =-4.5V, I _D =-0.3A | - | - | 400 | mΩ |
| V _{GS(th)} | Gate Threshold Voltage | V _{DS} =V _{GS} , I _D =-250uA | -1.2 | - | -3 | V |
| g _{fs} | Forward Transconductance | V _{DS} =-10V, I _D =-1A | - | 1.7 | - | S |
| I _{DSS} | Drain-Source Leakage Current (T _j =25°C) | V _{DS} =-30V, V _{GS} =0V | - | - | -1 | uA |
| | Drain-Source Leakage Current (T _j =70°C) | V _{DS} =-24V, V _{GS} =0V | - | - | -25 | uA |
| I _{GSS} | Gate-Source Leakage | V _{GS} =±20V | - | - | ±100 | nA |
| Q _g | Total Gate Charge ² | I _D =-1.2A | - | 2.5 | 4 | nC |
| Q _{gs} | Gate-Source Charge | V _{DS} =-10V | - | 1 | - | nC |
| Q _{gd} | Gate-Drain ("Miller") Charge | V _{GS} =-4.5V | - | 1 | - | nC |
| t _{d(on)} | Turn-on Delay Time ² | V _{DS} =-15V | - | 6 | - | ns |
| t _r | Rise Time | I _D =-0.6A | - | 9 | - | ns |
| t _{d(off)} | Turn-off Delay Time | R _G =3.3Ω, V _{GS} =-10V | - | 18 | - | ns |
| t _f | Fall Time | R _D =25Ω | - | 4 | - | ns |
| C _{iss} | Input Capacitance | V _{GS} =0V | - | 175 | 280 | pF |
| C _{oss} | Output Capacitance | V _{DS} =-10V | - | 63 | - | pF |
| C _{rss} | Reverse Transfer Capacitance | f=1.0MHz | - | 45 | - | pF |
| R _g | Gate Resistance | f=1.0MHz | - | 10 | 15 | Ω |

Source-Drain Diode

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|-----------------|---------------------------------|---|------|------|------|------|
| V _{SD} | Forward On Voltage ² | I _S =-0.9A, V _{GS} =0V | - | - | -1.3 | V |
| t _{rr} | Reverse Recovery Time | I _S =-1.2A, V _{GS} =0V, | - | 14 | - | ns |
| Q _{rr} | Reverse Recovery Charge | dI/dt=100A/μs | - | 6 | - | nC |

Notes:

- 1.Pulse width limited by Max. junction temperature.
- 2.Pulse test
- 3.Surface mounted on 1 in² copper pad of FR4 board, t_≤5sec ; 180°C/W when mounted on min. copper pad.

THIS PRODUCT IS AN ELECTROSTATIC SENSITIVE, PLEASE HANDLE WITH CAUTION.

THIS PRODUCT HAS BEEN QUALIFIED FOR CONSUMER MARKET. APPLICATIONS OR USES AS CRITERIAL COMPONENT IN LIFE SUPPORT DEVICE OR SYSTEM ARE NOT AUTHORIZED.



N-Channel

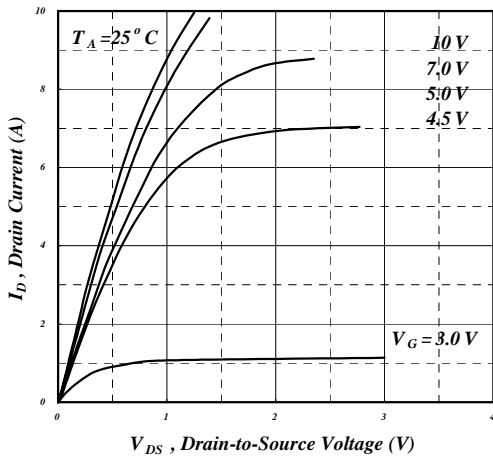


Fig 1. Typical Output Characteristics

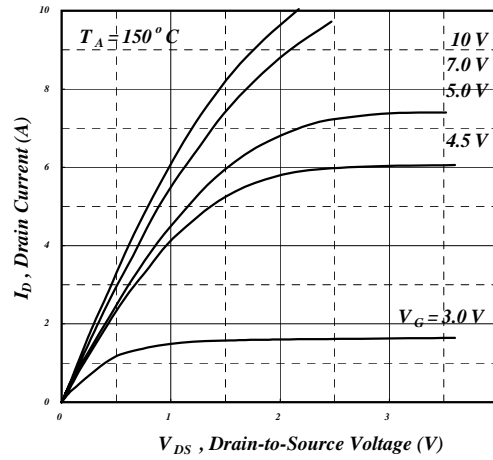


Fig 2. Typical Output Characteristics

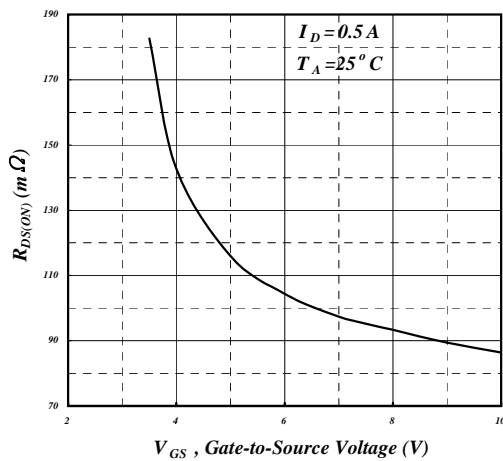


Fig 3. On-Resistance v.s. Gate Voltage

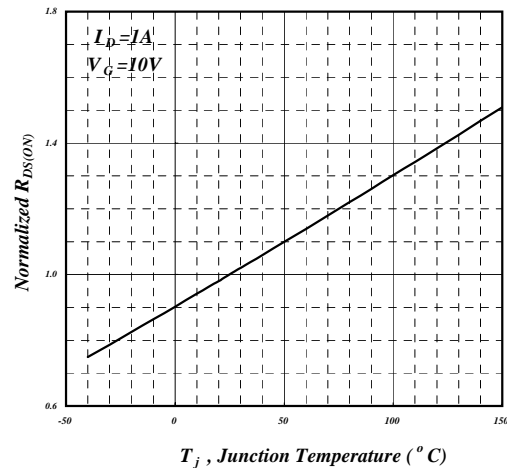


Fig 4. Normalized On-Resistance v.s. Junction Temperature

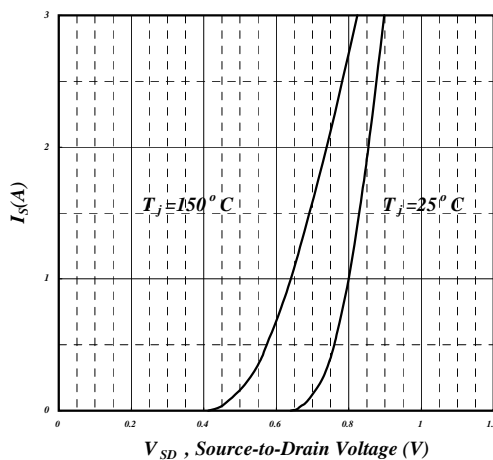


Fig 5. Forward Characteristic of Reverse Diode

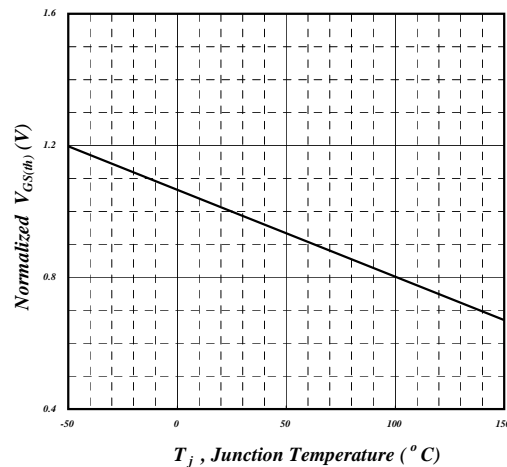


Fig 6. Gate Threshold Voltage v.s. Junction Temperature



N-Channel

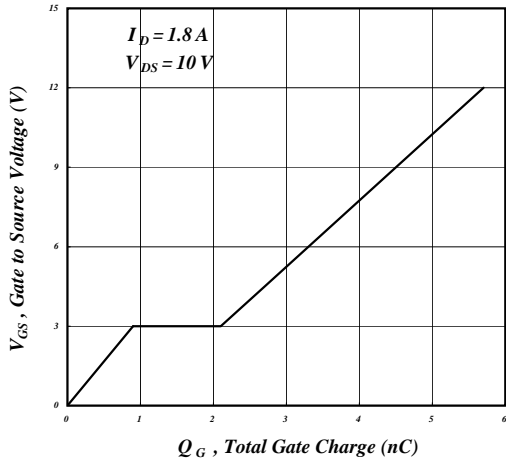


Fig 7. Gate Charge Characteristics

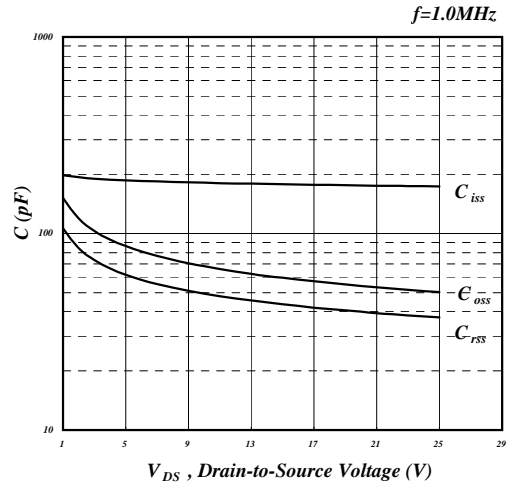


Fig 8. Typical Capacitance Characteristics

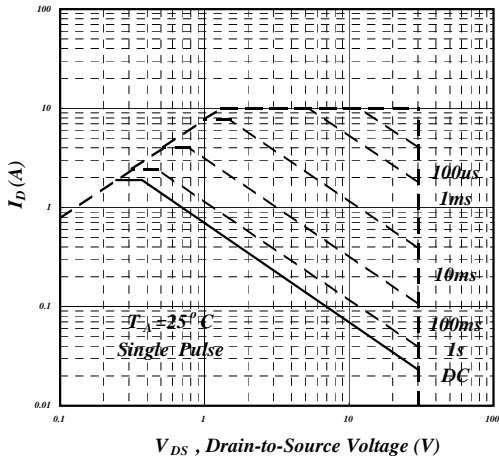


Fig 9. Maximum Safe Operating Area

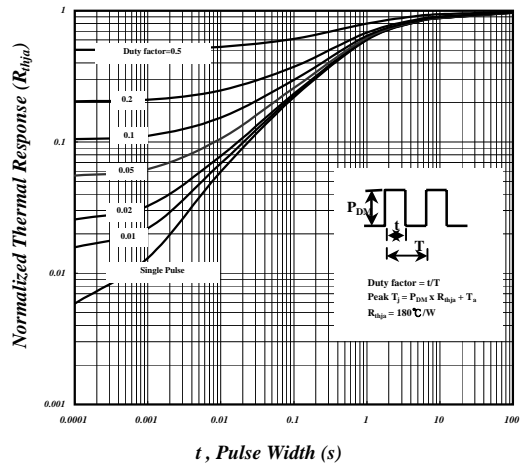


Fig 10. Effective Transient Thermal Impedance

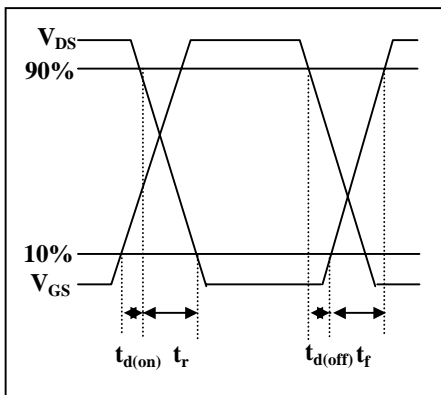


Fig 11. Switching Time Waveform

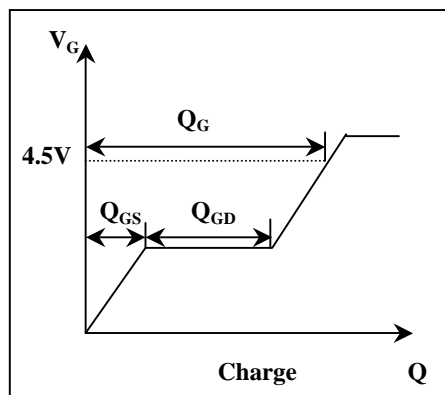


Fig 12. Gate Charge Waveform



P-Channel

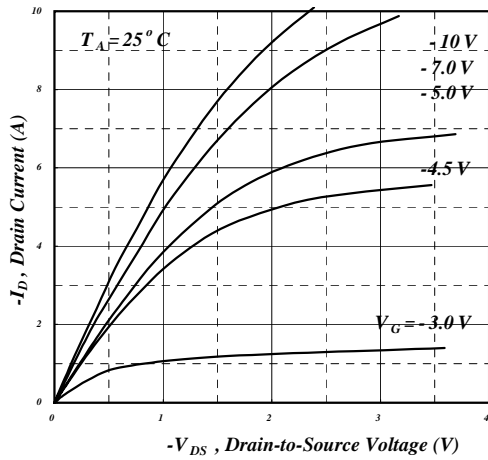


Fig 1. Typical Output Characteristics

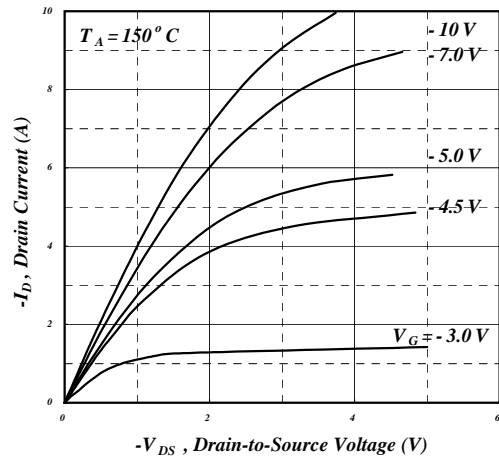


Fig 2. Typical Output Characteristics

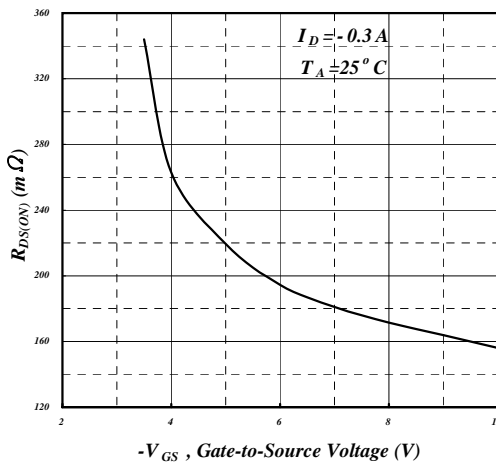


Fig 3. On-Resistance v.s. Gate Voltage

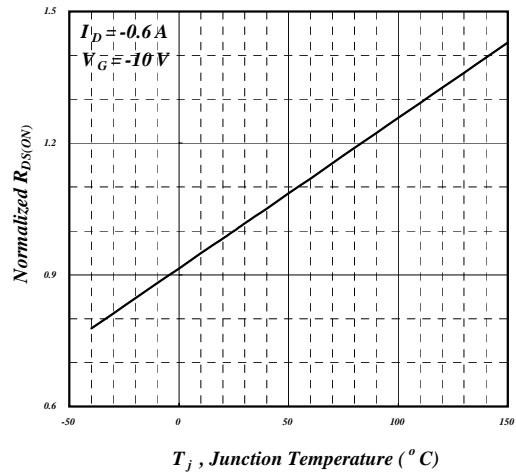


Fig 4. Normalized On-Resistance v.s. Junction Temperature

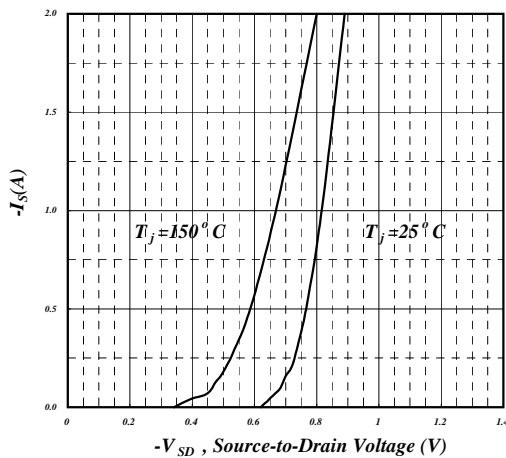


Fig 5. Forward Characteristic of Reverse Diode

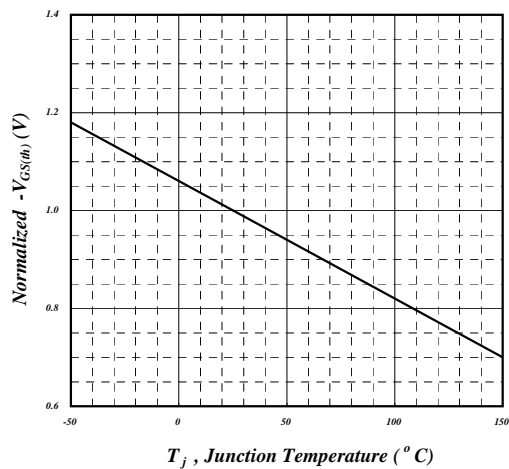


Fig 6. Gate Threshold Voltage v.s. Junction Temperature



P-Channel

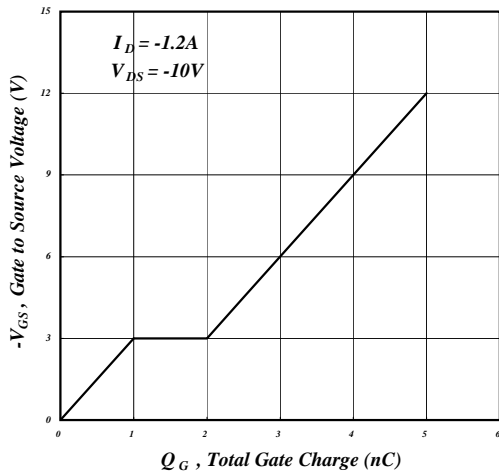


Fig 7. Gate Charge Characteristics

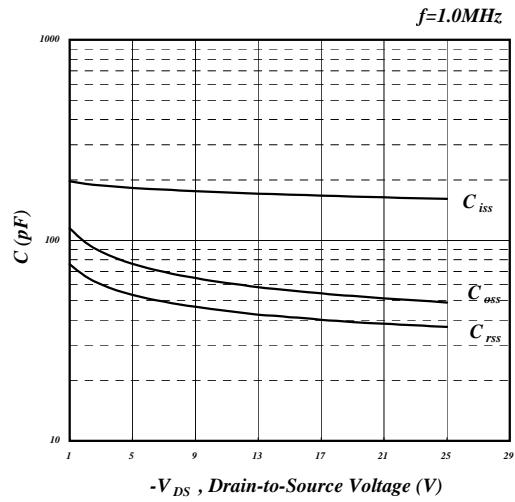


Fig 8. Typical Capacitance Characteristics

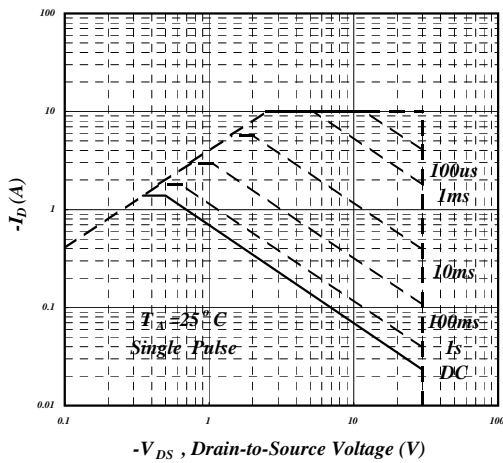


Fig 9. Maximum Safe Operating Area

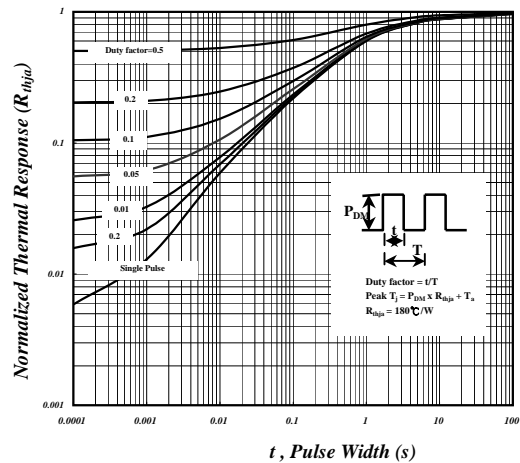


Fig 10. Effective Transient Thermal Impedance

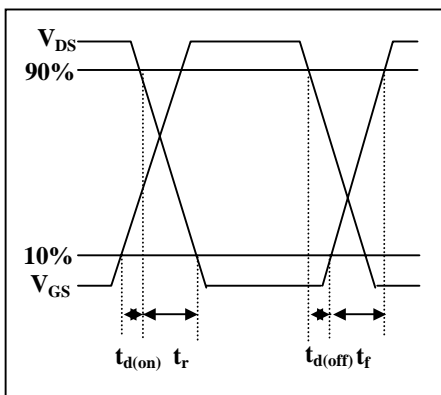


Fig 11. Switching Time Waveform

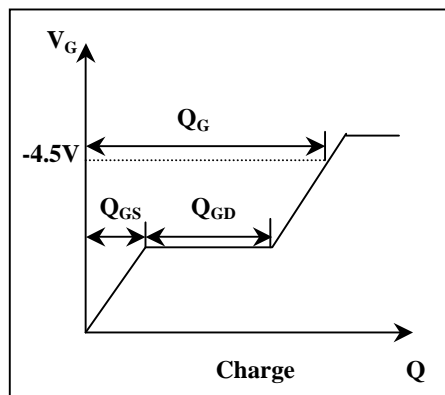
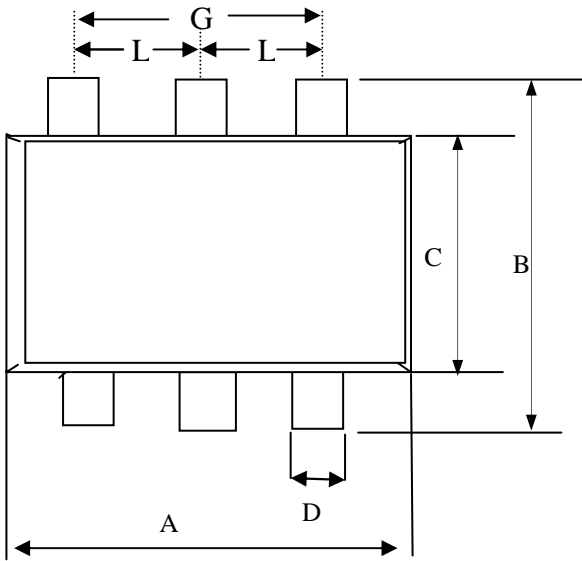


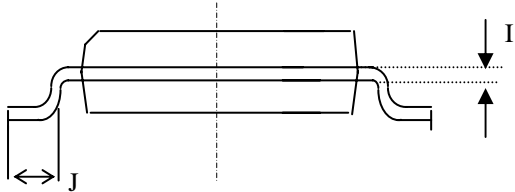
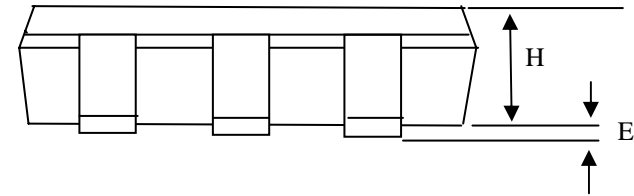
Fig 12. Gate Charge Waveform



Package Outline : SOT-26



| SYMBOLS | Millimeters | | |
|---------|-------------|------|------|
| | MIN | NOM | MAX |
| A | 2.70 | 2.90 | 3.10 |
| B | 2.60 | 2.80 | 3.00 |
| C | 1.40 | 1.60 | 1.80 |
| D | 0.30 | 0.43 | 0.55 |
| E | 0.00 | 0.05 | 0.10 |
| H | 1.20REF | | |
| G | 1.90REF | | |
| I | 0.12REF | | |
| J | 0.37REF | | |
| L | 0.95REF | | |



- 1.All Dimension Are In Millimeters.
- 2.Dimension Does Not Include Mold Protrusions.

Part Marking Information & Packing : SOT-26

