

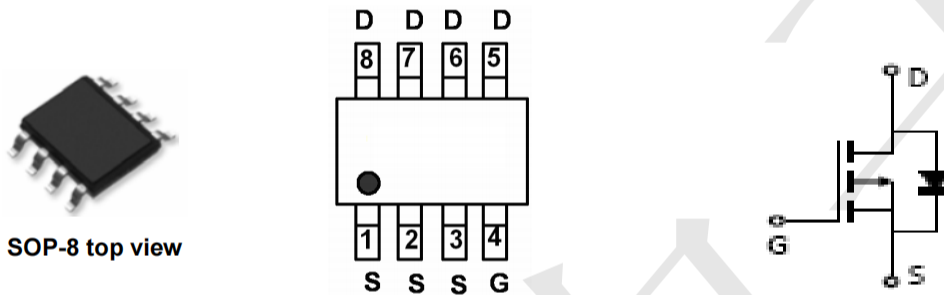
**FEATURES**

|  |               |
|--|---------------|
| $BV_{DSS}$                                     | -150V         |
| $I_D @ V_{GS} = -10V, T_C = 25^\circ C$        | -4.4A         |
| $I_D @ V_{GS} = -10V, T_A = 25^\circ C$        | -1.8A         |
| $R_{DS(ON) Typ. @ V_{GS} = -10V, I_D = -1.5A}$ | 270m $\Omega$ |

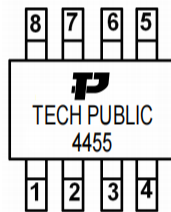
**APPLICATIONS**

- Low Gate Charge
- Fast Switching Characteristic
- ESD protected gate

**Package and Pin Configuration**



**Marking:**



**Absolute Maximum Ratings ( $T_A = 25^\circ C$ )**

| Parameter   | Symbol              | Limits   | Unit       |
|---|---------------------|----------|------------|
| Drain-Source Voltage  | $V_{DS}$            | -150     | V          |
| Gate-Source Voltage   | $V_{GS}$            | $\pm 20$ |            |
| Continuous Drain Current @ $V_{GS} = -10V, T_C = 25^\circ C$  | $I_D$               | -4.4     | A          |
| Continuous Drain Current @ $V_{GS} = -10V, T_C = 100^\circ C$ |                     | -2.8     |            |
| Continuous Drain Current @ $V_{GS} = -10V, T_A = 25^\circ C$  |                     | -1.8     |            |
| Continuous Drain Current @ $V_{GS} = -10V, T_A = 70^\circ C$  |                     | -1.4     |            |
| Pulsed Drain Current  | $I_{DM}$            | -17      |            |
| Continuous Body Diode Forward Current @ $T_C = 25^\circ C$    | $I_S$               | -4.4     |            |
| Pulsed Body Diode Forward Current @ $T_C = 25^\circ C$        | $I_{SM}$            | -17      |            |
| Avalanche Current @ $L = 0.1mH$                               | $I_{AS}$            | -15      | mJ         |
| Avalanche Energy @ $L = 0.5mH$                                | $E_{AS}$            | 25       |            |
| Total Power Dissipation                                       | $T_C = 25^\circ C$  | 14       | W          |
|   | $T_C = 100^\circ C$ | 5.6      |            |
|   | $T_A = 25^\circ C$  | 2.3      |            |
|   | $T_A = 70^\circ C$  | 1.5      |            |
| Operating Junction and Storage Temperature Range              | $T_J, T_{stg}$      | -55~+150 | $^\circ C$ |

**Thermal Data**

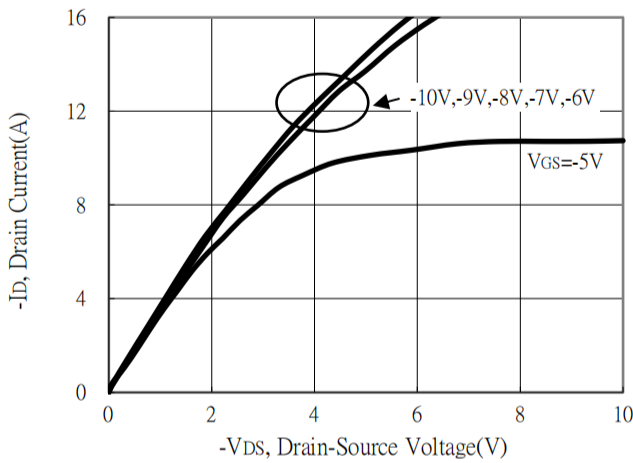
| Parameter                                  | Symbol          | Steady State | Unit |
|--|-----------------|--------------|------|
| Thermal Resistance, Junction-to-case       | $R_{\theta JC}$ | 9.2          | °C/W |
| Thermal Resistance, Junction-to-ambient *b | $R_{\theta JA}$ | 55           |      |

**Electrical Characteristics ( $T_A=25^\circ\text{C}$ , unless otherwise specified)**

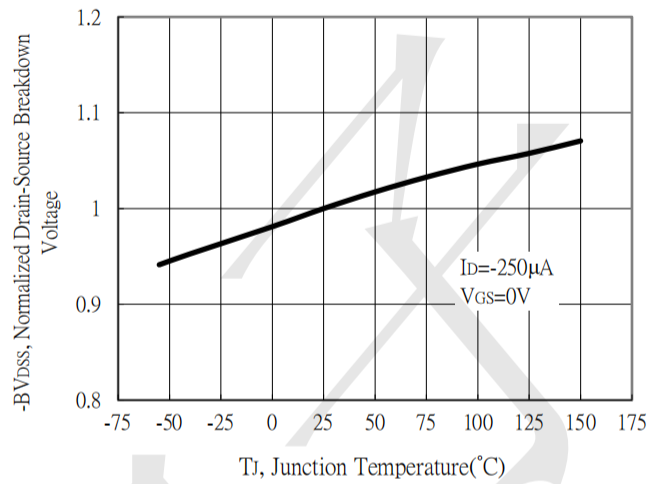
| Symbol                    | Min. | Typ.  | Max.     | Unit      | Test Conditions   |
|---------------------------|------|-------|----------|-----------|---|
| <b>Static</b>             |      |       |          |           |   |
| $BV_{DSS}$                | -150 | -     | -        | V         | $V_{GS}=0V, I_D=-250\mu A$                              |
| $V_{GS(th)}$              | -2   | -     | -4       |           | $V_{DS}=V_{GS}, I_D=-250\mu A$                          |
| $G_{FS}$                  | -    | 4.2   | -        | S         | $V_{DS}=-10V, I_D=-1.5A$                                |
| $I_{GSS}$                 | -    | -     | $\pm 10$ | $\mu A$   | $V_{GS}=\pm 16V, V_{DS}=0V$                             |
| $I_{DSS}$                 | -    | -     | -1       |           | $V_{DS}=-120V, V_{GS}=0V$                               |
| $R_{DS(ON)}$              | -    | 270   | 350      | $m\Omega$ | $V_{GS}=-10V, I_D=-1.5A$                                |
| <b>Dynamic</b>            |      |       |          |           |   |
| $C_{iss}$                 | -    | 930   | -        | pF        | $V_{DS}=-75V, V_{GS}=0V, f=1MHz$                        |
| $C_{oss}$                 | -    | 55    | -        |           |   |
| $C_{rss}$                 | -    | 25    | -        |           |   |
| $Q_g$ *1,2                | -    | 20    | -        | nC        | $V_{DS}=-75V, I_D=-1.3A, V_{GS}=-10V$                   |
| $Q_{gs}$ *1,2             | -    | 4     | -        |           |   |
| $Q_{gd}$ *1,2             | -    | 5     | -        |           |   |
| $t_{d(ON)}$ *1,2          | -    | 80    | -        | ns        | $V_{DS}=-75V, I_D=-1.3A, V_{GS}=-10V, R_{GS}=6.5\Omega$ |
| $t_r$ *1,2                | -    | 46    | -        |           |   |
| $t_{d(OFF)}$ *1,2         | -    | 203   | -        |           |   |
| $t_f$ *1,2                | -    | 525   | -        |           |   |
| <b>Source-Drain Diode</b> |      |       |          |           |   |
| $V_{SD}$ *1               | -    | -0.77 | -1.2     | V         | $I_S=-1.5A, V_{GS}=0V$                                  |
| $t_{rr}$                  | -    | 34    | -        | ns        | $I_F=-1.3A, dI_F/dt=100A/\mu s$                         |
| $Q_{rr}$                  | -    | 50    | -        | nC        |   |

**Typical Characteristics**

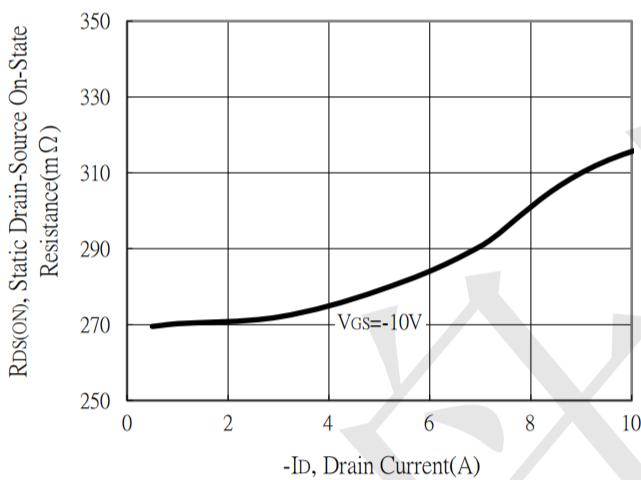
Typical Output Characteristics



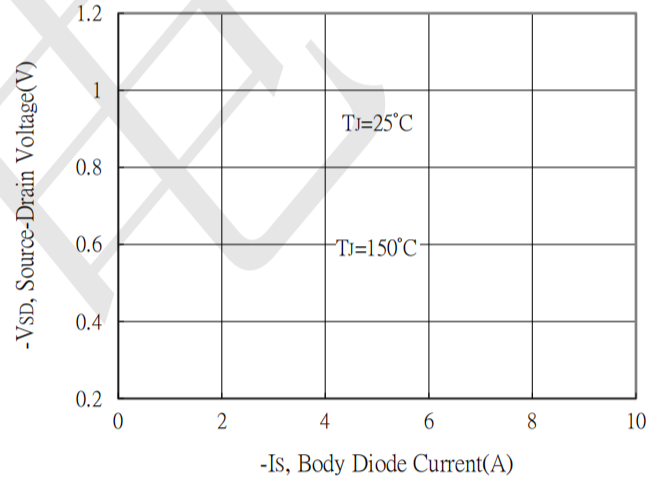
Breakdown Voltage vs Ambient Temperature



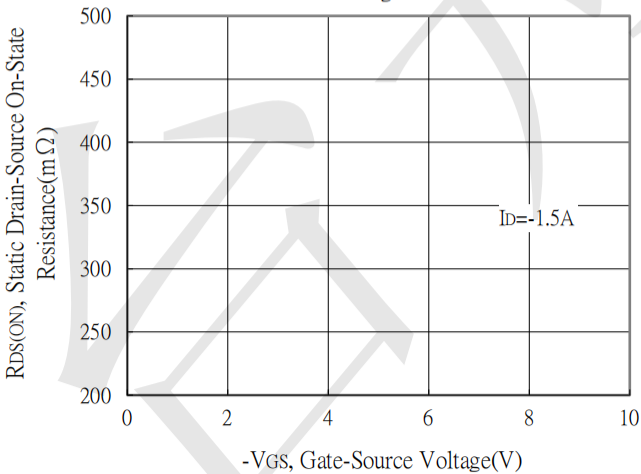
Static Drain-Source On-State resistance vs Drain Current



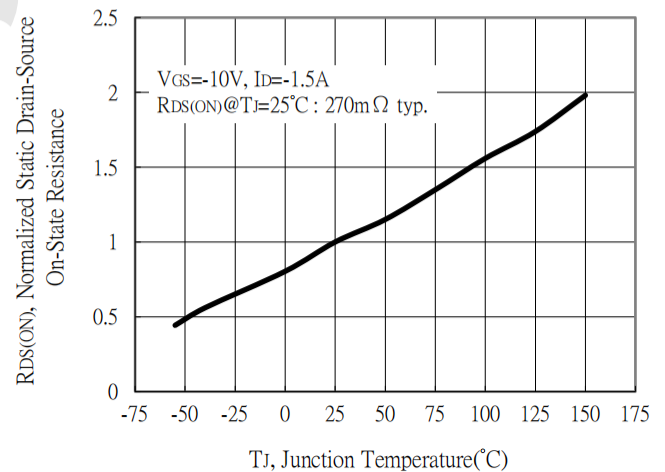
Body Diode Current vs Source-Drain Voltage



Static Drain-Source On-State Resistance vs Gate-Source Voltage

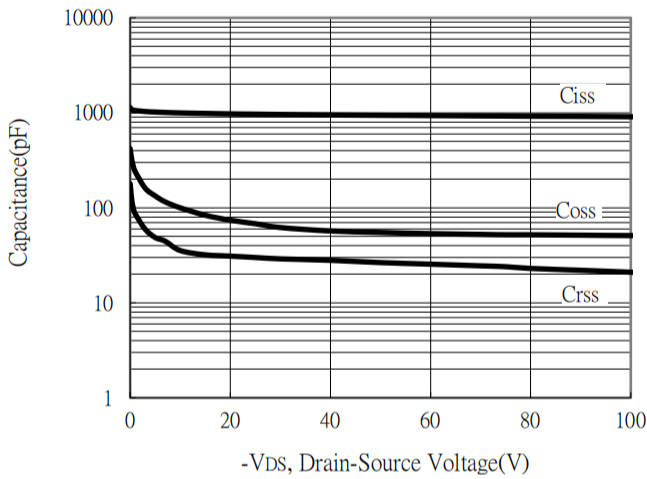


Drain-Source On-State Resistance vs Junction Temperature

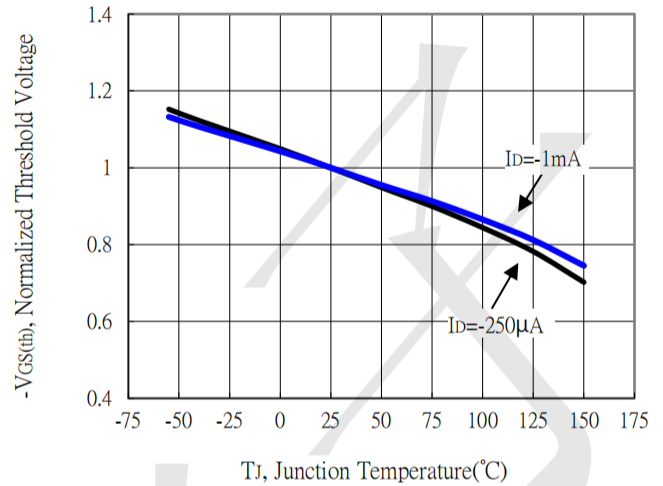


**Typical Characteristics (Cont.)**

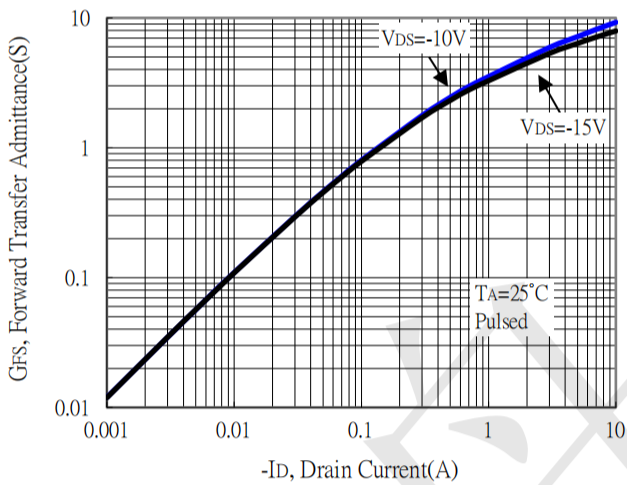
Capacitance vs Drain-to-Source Voltage



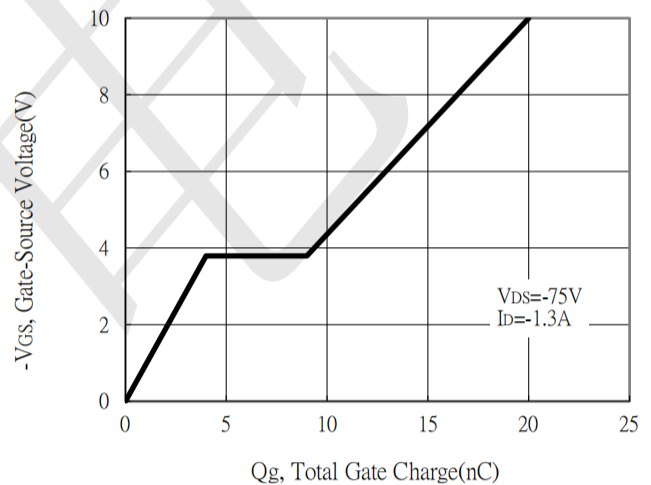
Threshold Voltage vs Junction Temperature



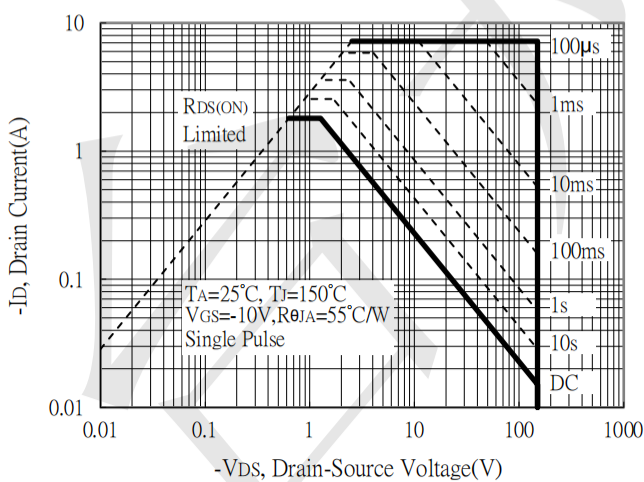
Forward Transfer Admittance vs Drain Current



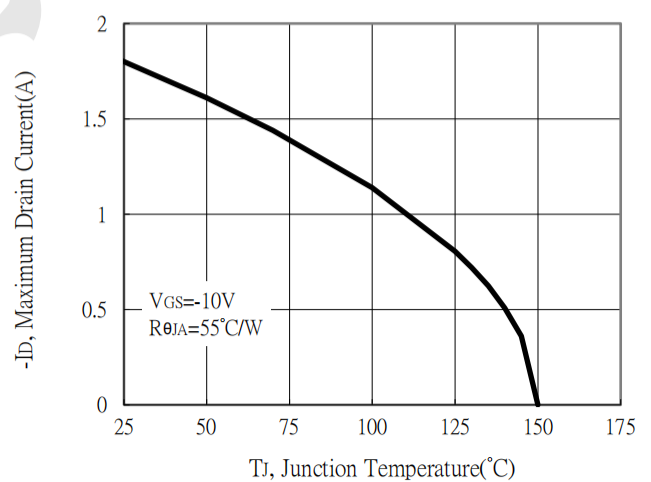
Gate Charge Characteristics



Maximum Safe Operating Area

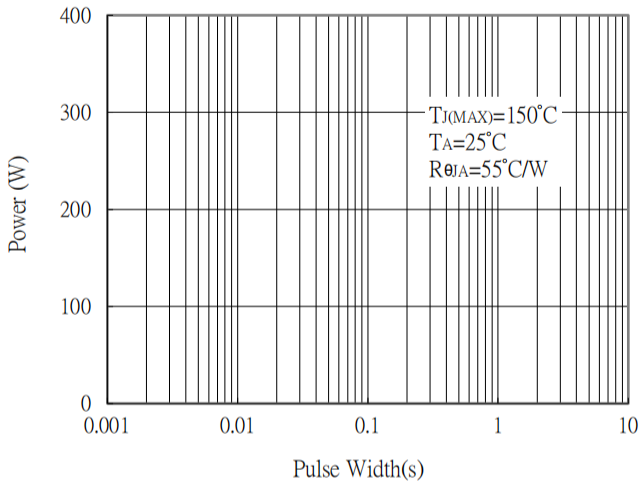


Maximum Drain Current vs Junction Temperature

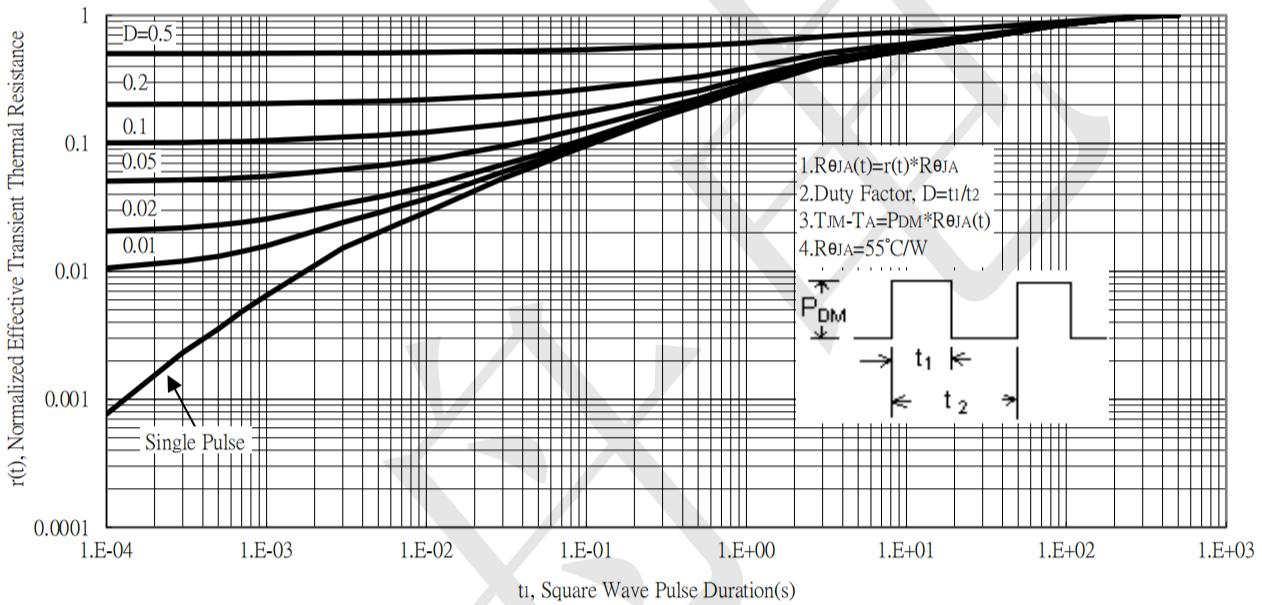


**Typical Characteristics (Cont.)**

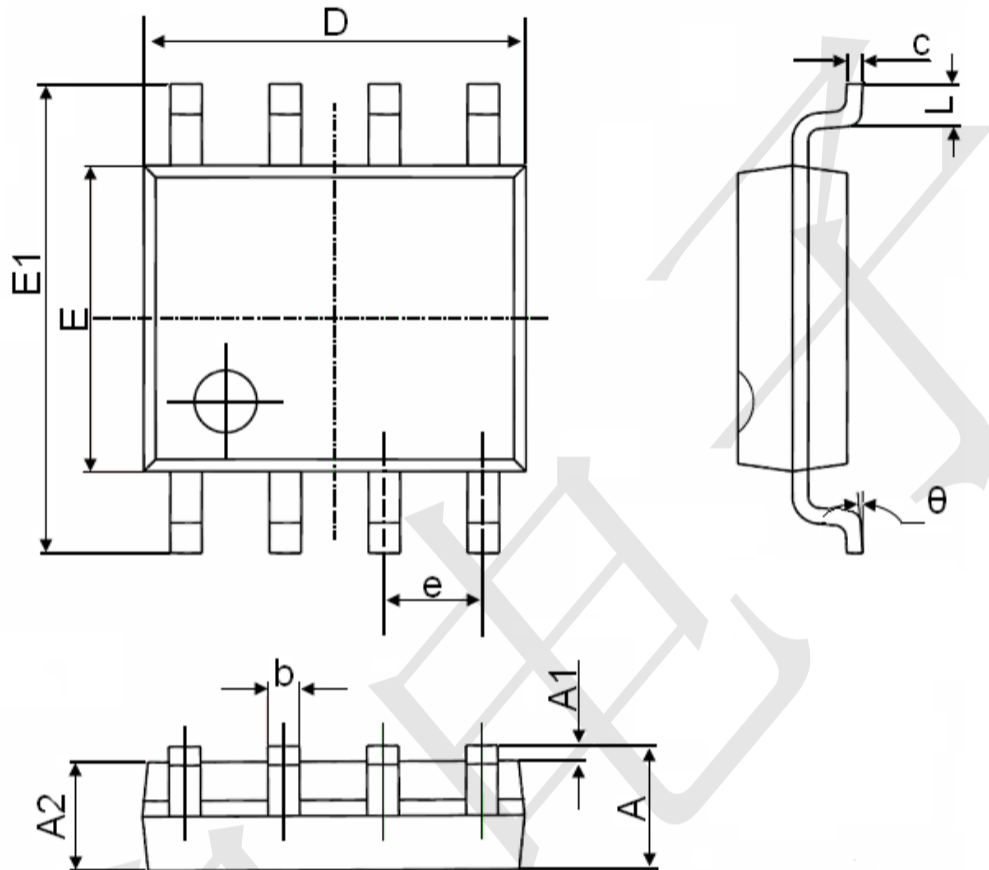
Single Pulse Power Rating, Junction to Ambient



Transient Thermal Response Curves



**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°    |

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