



# SPP3095

## P-Channel Enhancement Mode MOSFET

### DESCRIPTION

The SPP3095 is the P-Channel logic enhancement mode power field effect transistors are produced using high cell density , DMOS trench technology.

This high density process is especially tailored to minimize on-state resistance. These devices are particularly suited for low voltage application, such as DC/DC converter and Desktop computer power management.

The package is universally preferred for commercial industrial surface mount applications

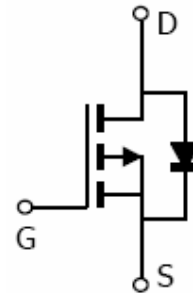
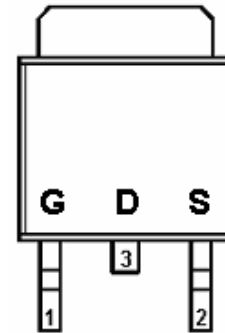
### FEATURES

- ◆ -30V/- 8A, $R_{DS(ON)}=100m\Omega@V_{GS}=-10V$
- ◆ -30V/- 6A, $R_{DS(ON)}=135m\Omega@V_{GS}=-4.5V$
- ◆ Super high density cell design for extremely low  $R_{DS(ON)}$
- ◆ Exceptional on-resistance and maximum DC current capability
- ◆ TO-252-2L package design

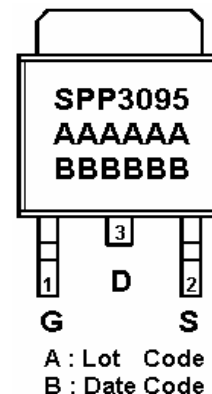
### APPLICATIONS

- Power Management in Desktop Computer
- DC/DC Converter
- LCD Display inverter

### PIN CONFIGURATION ( TO-252-2L )



### PART MARKING





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### PIN DESCRIPTION

| Pin | Symbol | Description |
|-----|--------|-------------|
| 1   | G      | Gate        |
| 2   | S      | Source      |
| 3   | D      | Drain       |

### ORDERING INFORMATION

| Part Number   | Package   | Part Marking |
|---------------|-----------|--------------|
| SPP3095T252RG | TO-252-2L | SPP3095      |

※ Week Code : A ~ Z ( 1 ~ 26 ) ; a ~ z ( 27 ~ 52 )

※ SPP3095T252RG : Tape Reel ; Pb – Free

### ABSOLUTE MAXIMUM RATINGS

( $T_A=25^{\circ}\text{C}$  Unless otherwise noted)

| Parameter   | Symbol          | Typical                  | Unit                        |   |
|---|-----------------|--------------------------|-----------------------------|---|
| Drain-Source Voltage                                  | $V_{DS}$        | -30                      | V                           |   |
| Gate –Source Voltage                                  | $V_{GS}$        | $\pm 20$                 | V                           |   |
| Continuous Drain Current( $T_J=150^{\circ}\text{C}$ ) | $I_D$           | $T_A=25^{\circ}\text{C}$ | -12                         | A |
|   |                 | $T_A=70^{\circ}\text{C}$ | -8                          |   |
| Pulsed Drain Current                                  | $I_{DM}$        | -20                      | A                           |   |
| Continuous Source Current(Diode Conduction)           | $I_S$           | -15                      | A                           |   |
| Power Dissipation                                     | $P_D$           | $T_A=25^{\circ}\text{C}$ | 40                          | W |
|   |                 | $T_A=70^{\circ}\text{C}$ | 20                          |   |
| Operating Junction Temperature                        | $T_J$           | -55/150                  | $^{\circ}\text{C}$          |   |
| Storage Temperature Range                             | $T_{STG}$       | -55/150                  | $^{\circ}\text{C}$          |   |
| Thermal Resistance-Junction to Ambient                | $R_{\theta JA}$ | 105                      | $^{\circ}\text{C}/\text{W}$ |   |



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### ELECTRICAL CHARACTERISTICS

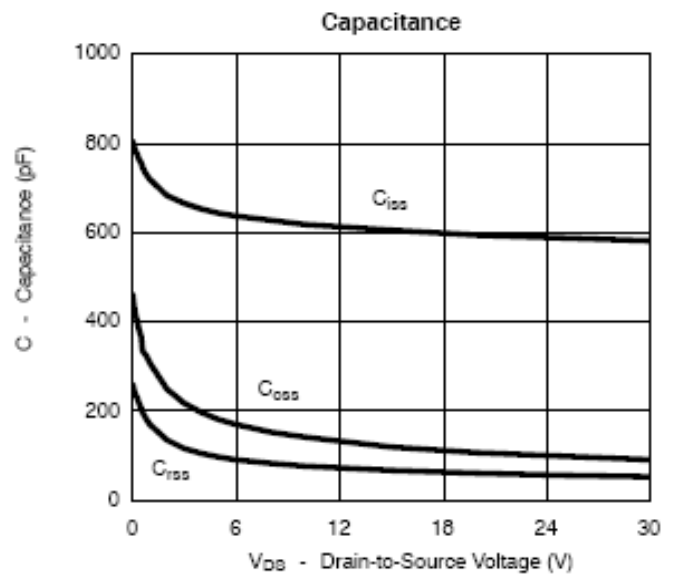
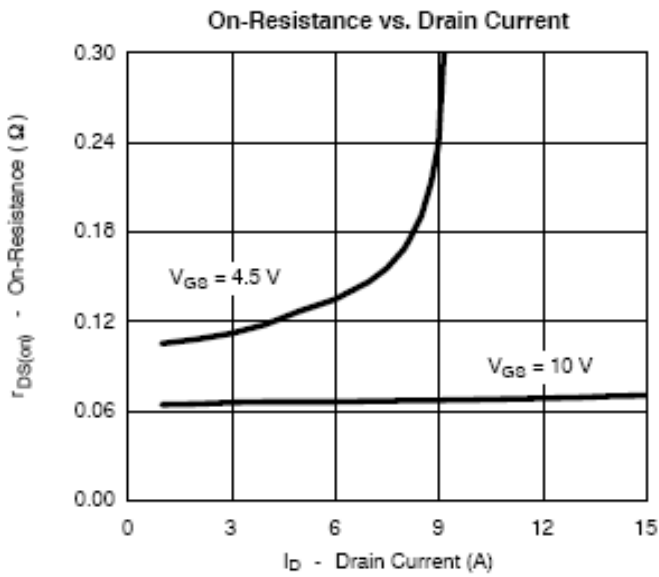
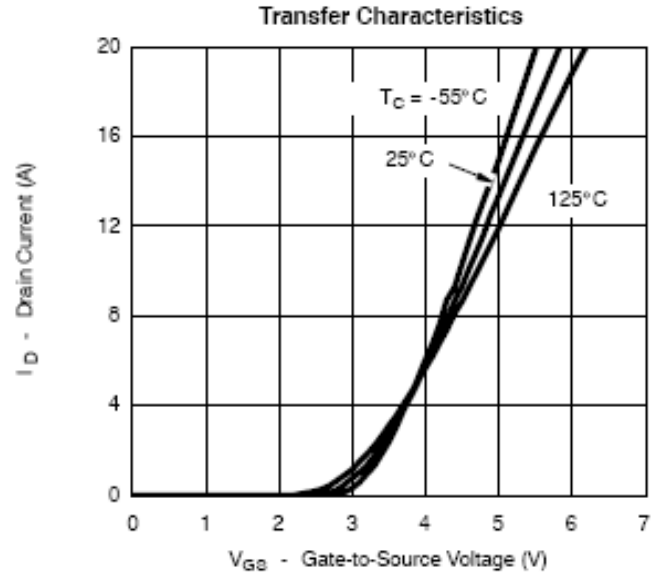
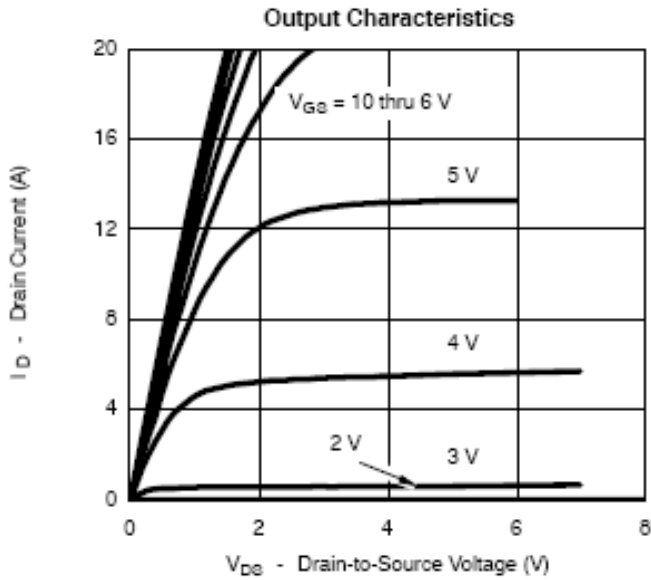
(TA=25°C Unless otherwise noted)

| Parameter                       | Symbol        | Conditions  | Min. | Typ   | Max.      | Unit     |
|---------------------------------|---------------|---|------|-------|-----------|----------|
| <b>Static</b>                   |               |   |      |       |           |          |
| Drain-Source Breakdown Voltage  | $V_{(BR)DSS}$ | $V_{GS}=0V, I_D=-250\mu A$  | -30  |       |           | V        |
| Gate Threshold Voltage          | $V_{GS(th)}$  | $V_{DS}=V_{GS}, I_D=-250\mu A$  | -1.0 |       | -3.0      |          |
| Gate Leakage Current            | $I_{GSS}$     | $V_{DS}=0V, V_{GS}=\pm 20V$   |      |       | $\pm 100$ | nA       |
| Zero Gate Voltage Drain Current | $I_{DSS}$     | $V_{DS}=-24V, V_{GS}=0V$  |      |       | -1        | uA       |
|                                 |               | $V_{DS}=-24V, V_{GS}=0V$<br>$T_J=85^\circ C$                              |      |       | -5        |          |
| Drain-Source On-Resistance      | $R_{DS(on)}$  | $V_{GS}=-10V, I_D=-8A$  |      | 0.083 | 0.100     | $\Omega$ |
|                                 |               | $V_{GS}=-4.5V, I_D=-6A$   |      | 0.117 | 0.135     |          |
| Forward Transconductance        | $g_{fs}$      | $V_{DS}=-10V, I_D=-8A$  |      | 8     |           | S        |
| Diode Forward Voltage           | $V_{SD}$      | $I_S=-2.5A, V_{GS}=0V$  |      | -0.8  | -1.2      | V        |
| <b>Dynamic</b>                  |               |   |      |       |           |          |
| Total Gate Charge               | $Q_g$         | $V_{DS}=-15V, V_{GS}=-10V$<br>$I_D=-8A$                                   |      | 5.8   | 10        | nC       |
| Gate-Source Charge              | $Q_{gs}$      |   |      | 0.8   |           |          |
| Gate-Drain Charge               | $Q_{gd}$      |   |      | 1.5   |           |          |
| Input Capacitance               | $C_{iss}$     | $V_{DS}=-15V, V_{GS}=0V$<br>$f=1MHz$                                      |      | 226   |           | pF       |
| Output Capacitance              | $C_{oss}$     |   |      | 87    |           |          |
| Reverse Transfer Capacitance    | $C_{rss}$     |   |      | 19    |           |          |
| Turn-On Time                    | $t_{d(on)}$   | $V_{DD}=-15V, R_L=15\Omega$<br>$I_D=-1.0A, V_{GEN}=-10V$<br>$R_G=6\Omega$ |      | 9     | 20        | ns       |
|                                 | $t_r$         |   |      | 9     | 20        |          |
| Turn-Off Time                   | $t_{d(off)}$  |   |      | 18    | 35        |          |
|                                 | $t_f$         |   |      | 6     | 20        |          |



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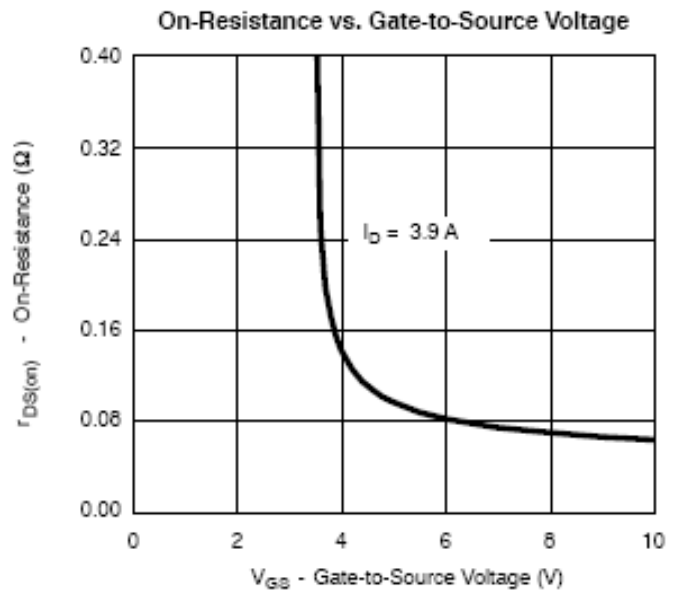
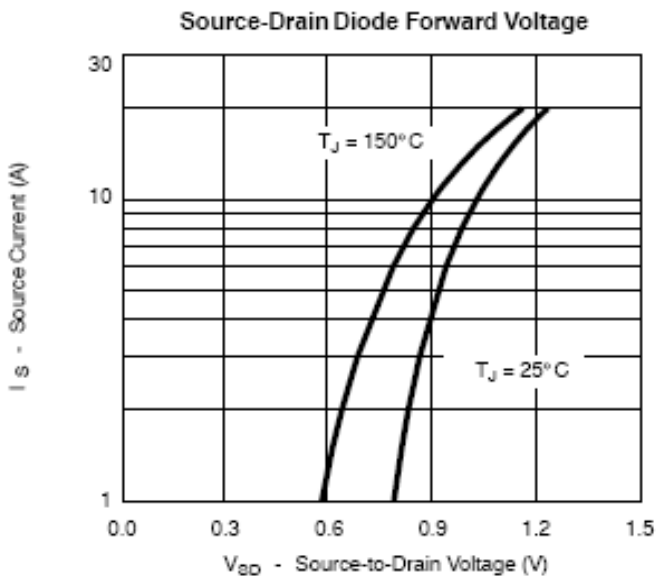
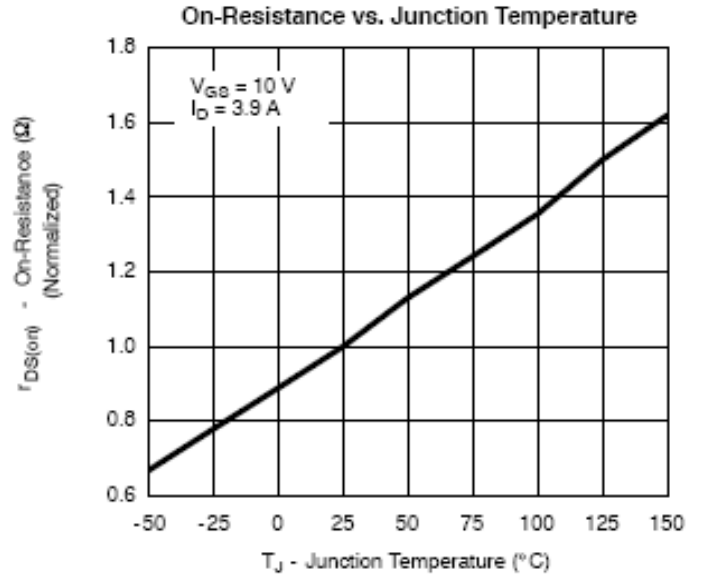
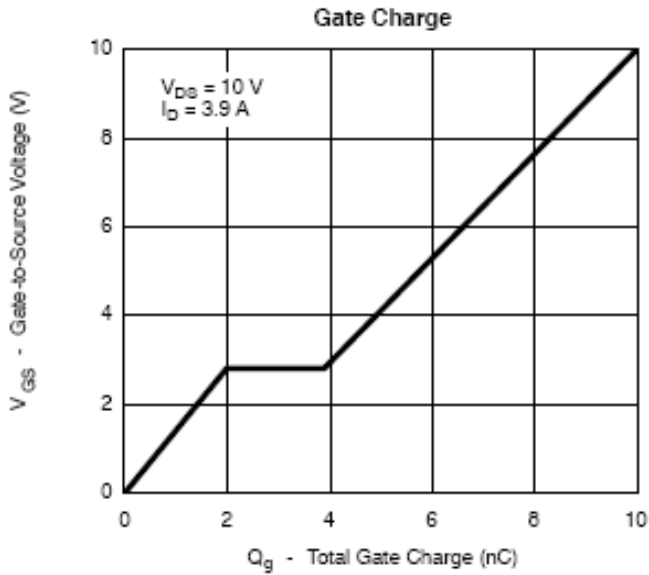
## TYPICAL CHARACTERISTICS





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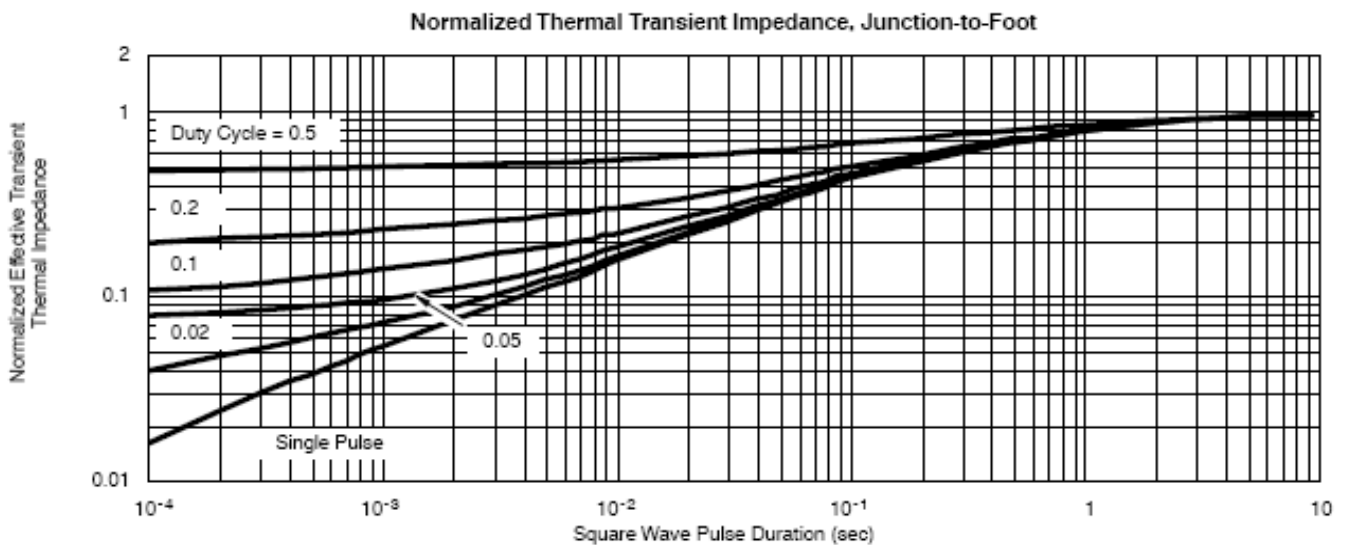
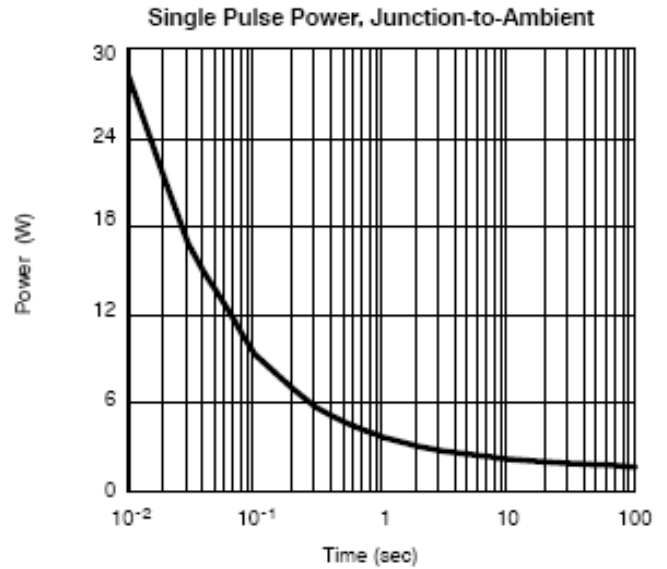
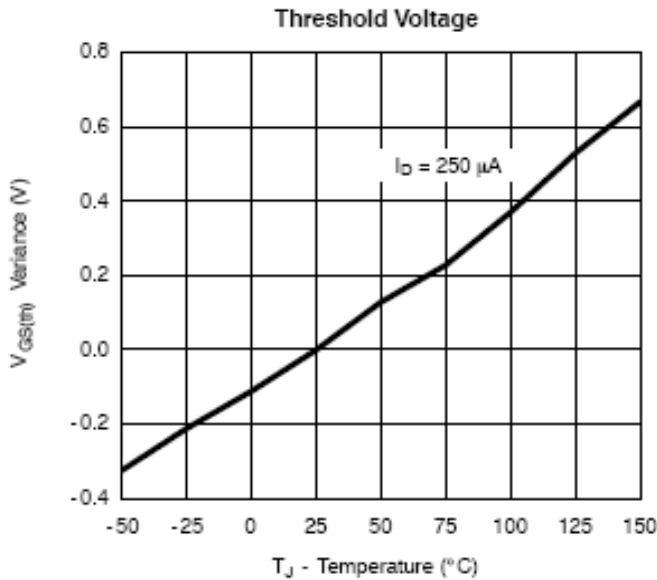
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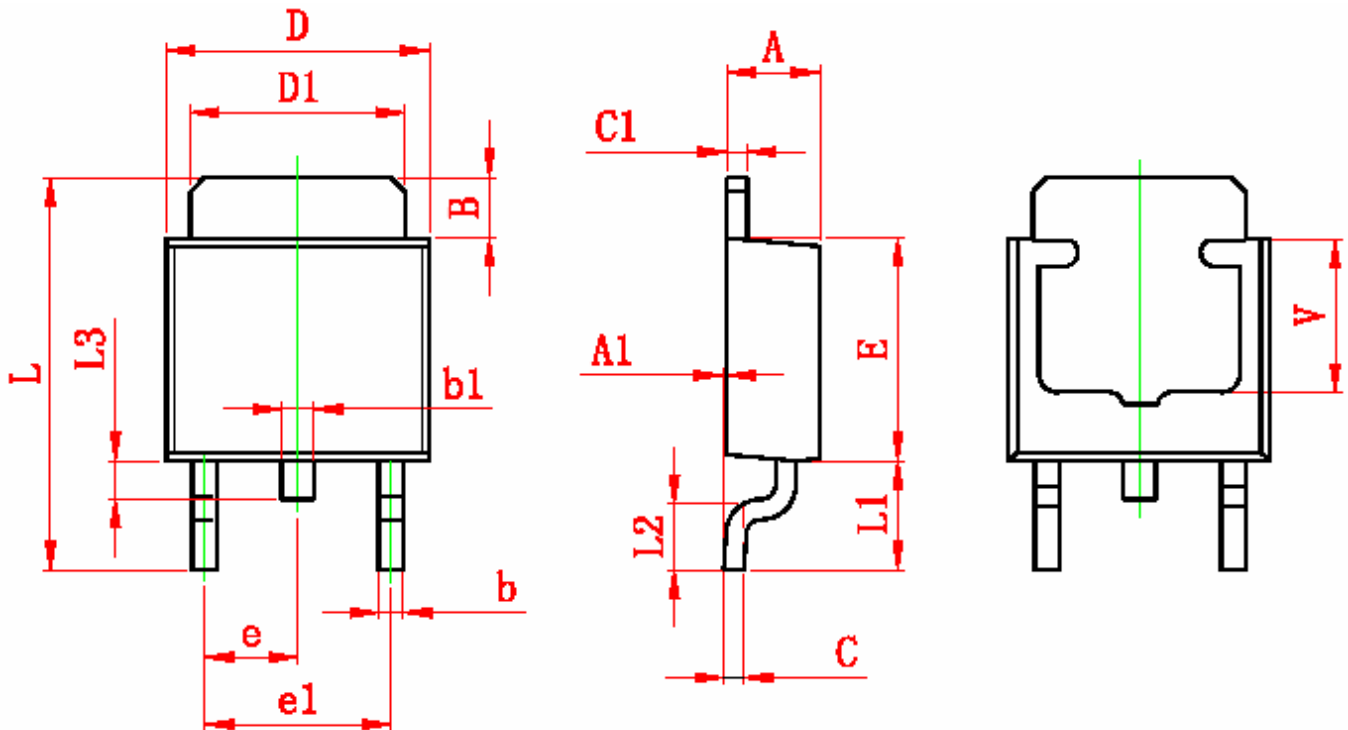




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### TO-252-2L PACKAGE OUTLINE



| Symbol | Dimensions In Millimeters |       | Dimensions In Inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min.                      | Max.  | Min.                 | Max.  |
| A      | 2.200                     | 2.400 | 0.087                | 0.094 |
| A1     | 0.000                     | 0.127 | 0.000                | 0.005 |
| B      | 1.350                     | 1.650 | 0.053                | 0.065 |
| b      | 0.500                     | 0.700 | 0.020                | 0.028 |
| b1     | 0.700                     | 0.900 | 0.028                | 0.035 |
| c      | 0.430                     | 0.580 | 0.017                | 0.023 |
| c1     | 0.430                     | 0.580 | 0.017                | 0.023 |
| D      | 6.350                     | 6.650 | 0.250                | 0.262 |
| D1     | 5.200                     | 5.400 | 0.205                | 0.213 |
| E      | 5.400                     | 5.700 | 0.213                | 0.224 |
| e      | 2.300 TYP.                |       | 0.091 TYP.           |       |
| e1     | 4.500                     | 4.700 | 0.177                | 0.185 |
| L      | 9.500                     | 9.900 | 0.374                | 0.390 |
| L1     | 2.550                     | 2.900 | 0.100                | 0.114 |
| L2     | 1.400                     | 1.780 | 0.055                | 0.070 |
| L3     | 0.600                     | 0.900 | 0.024                | 0.035 |
| V      | 3.800 REF.                |       | 0.150 REF.           |       |



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