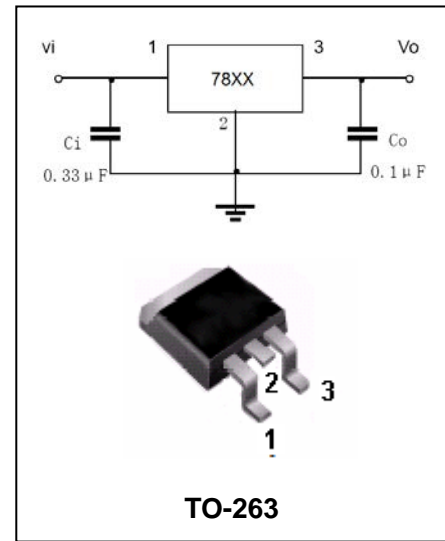


FEATURES

- Internal Thermal Overload Protection.
- Internal Short Circuit Current Limiting.
- Output Current up to 1.5A.
- Satisfies IEC-65 Specification.
(International Electrotechnical Commission).



APPLICATIONS

- Three-terminal positive voltage regulator.

Ordering Information

| Part Number | Package | Shipping | Marking Code |
|-------------|---------|--------------------------------------|--------------|
| LGE7805D2T | TO-263 | 50pcs / Tube or 800pcs / Tape & Reel | LGE 7805 |
| LGE7806D2T | TO-263 | 50pcs / Tube or 800pcs / Tape & Reel | LGE 7806 |
| LGE7807D2T | TO-263 | 50pcs / Tube or 800pcs / Tape & Reel | LGE 7807 |
| LGE7808D2T | TO-263 | 50pcs / Tube or 800pcs / Tape & Reel | LGE 7808 |
| LGE7809D2T | TO-263 | 50pcs / Tube or 800pcs / Tape & Reel | LGE 7809 |
| LGE7810D2T | TO-263 | 50pcs / Tube or 800pcs / Tape & Reel | LGE 7810 |
| LGE7812D2T | TO-263 | 50pcs / Tube or 800pcs / Tape & Reel | LGE 7812 |
| LGE7815D2T | TO-263 | 50pcs / Tube or 800pcs / Tape & Reel | LGE 7815 |
| LGE7818D2T | TO-263 | 50pcs / Tube or 800pcs / Tape & Reel | LGE 7818 |
| LGE7820D2T | TO-263 | 50pcs / Tube or 800pcs / Tape & Reel | LGE 7820 |
| LGE7824D2T | TO-263 | 50pcs / Tube or 800pcs / Tape & Reel | LGE 7824 |

MAXIMUM RATING @ Ta=25°C unless otherwise specified

| Symbol | Parameter | Value | Units |
|------------------|--------------------------------|---------------------|-------|
| V _I | Input voltage | (7805--7815) | 35 |
| | | (7818--7824) | 40 |
| P _D | Power dissipation-1 | (No Heatsink) | 1.9 |
| | Power dissipation-2 | (Infinite Heatsink) | 30 |
| T _J | Operating junction temperature | -40 to +125 | °C |
| T _{STG} | Storage temperature range | -55 to +150 | °C |

ELECTRICAL CHARACTERISTICS (V_{IN}=10V, I_O=500mA, 0°C ≤ T_J ≤ 125°C)

| Parameter | Symbol | Test conditions | LGE7805D2T | | | UNIT |
|--|----------------------|---|------------|------|------|-------|
| | | | MIN | TYP | MAX | |
| Output voltage | V _O | T _J =25°C, I _O =100mA | 4.8 | 5.0 | 5.2 | V |
| Load regulation | Reg _{load} | T _J =25°C, I _O =5mA-1.5A | | 15 | 100 | mV |
| | | T _J =25°C, I _O =250mA-750mA | | 5 | 50 | |
| Input regulation | Reg _{Input} | T _J =25°C, 7V ≤ V _I ≤ 25V | | 3 | 100 | mV |
| | | T _J =25°C, 8V ≤ V _I ≤ 12V | | 1 | 50 | |
| Output voltage | V _O | 7.0V ≤ V _I ≤ 20V | 4.75 | | 5.25 | V |
| Quiescent Current | I _B | T _J =25°C, I _O =5mA | | 4.2 | 8.0 | mA |
| Quiescent Current Change | ΔI _B | 7.0V ≤ V _I ≤ 25V | | | 1.3 | mA |
| Output noise voltage | V _N | T _a =25°C, 10Hz ≤ f ≤ 100KHz | | 50 | | μV |
| Ripple rejection | RR | 8V ≤ V _I ≤ 18V, f=120Hz | 62 | 78 | | dB |
| Dropout voltage | V _D | T _J =25°C, I _O =1.0A | | 2.0 | | V |
| Short Circuit Current Limit | I _{sc} | T _J =25°C | | 1.6 | | A |
| Average temperature coefficient Of Output voltage | TC _{VO} | 0°C ≤ T _J ≤ 125°C, I _O =5mA | | -0.6 | | mv/°C |

ELECTRICAL CHARACTERISTICS ($V_{IN}=11V, I_o=500mA, 0^{\circ}C \leq T_j \leq 125^{\circ}C$)

| Parameter | Symbol | Test conditions | LGE7806D2T | | | UNIT |
|---|---------------|--|------------|---------|-----------|-----------------|
| | | | MIN | TYP | MAX | |
| Output voltage | V_o | $T_j=25^{\circ}C, I_o=100mA$ | 5.75 | 6.0 | 6.25 | V |
| Load regulation | Reg_{load} | $T_j=25^{\circ}C, I_o=5mA-1.5A$ $T_j=25^{\circ}C, I_o=250mA-750mA$ | | 15 5 | 120 60 | mV |
| Input regulation | Reg_{Input} | $T_j=25^{\circ}C, 8V \leq V_i \leq 25V$ $T_j=25^{\circ}C, 9V \leq V_i \leq 13V$ | | 4 2 | 120 60 | mV |
| Output voltage | V_o | $8.0V \leq V_i \leq 21V$ | 5.7 | | 6.3 | V |
| Quiescent Current | I_B | $T_j=25^{\circ}C, I_o=5mA$ | | 4.3 | 8.0 | mA |
| Quiescent Current Change | ΔI_B | $8.0V \leq V_i \leq 25V$ | | | 1.3 | mA |
| Output noise voltage | V_N | $T_a=25^{\circ}C, 10Hz \leq f \leq 100KHz$ | | 55 | | μV |
| Ripple rejection | RR | $9V \leq V_i \leq 19V, f=120Hz$ | 61 | 77 | | dB |
| Dropout voltage | V_D | $T_j=25^{\circ}C, I_o=1.0A$ | | 2.0 | | V |
| Short Circuit Current Limit | I_{sc} | $T_j=25^{\circ}C$ | | 1.5 | | A |
| Average temperature coefficient Of Output voltage | TC_{V_o} | $0^{\circ}C \leq T_j \leq 125^{\circ}C, I_o=5mA$ | | -0.7 | | mv/ $^{\circ}C$ |

ELECTRICAL CHARACTERISTICS ($V_{IN}=12V, I_o=500mA, 0^{\circ}C \leq T_j \leq 125^{\circ}C$)

| Parameter | Symbol | Test conditions | LGE7807D2T | | | UNIT |
|-------------------|---------------|---|------------|---------|-----------|------|
| | | | MIN | TYP | MAX | |
| Output voltage | V_o | $T_j=25^{\circ}C, I_o=100mA$ | 6.72 | 7.0 | 7.28 | V |
| Load regulation | Reg_{load} | $T_j=25^{\circ}C, I_o=5mA-1.5A$ $T_j=25^{\circ}C, I_o=250mA-750mA$ | | 15 5 | 140 70 | mV |
| Input regulation | Reg_{Input} | $T_j=25^{\circ}C, 9V \leq V_i \leq 25V$ $T_j=25^{\circ}C, 10V \leq V_i \leq 14V$ | | 5 2 | 140 70 | mV |
| Output voltage | V_o | $9.0V \leq V_i \leq 22V$ | 6.65 | | 7.35 | V |
| Quiescent Current | I_B | $T_j=25^{\circ}C, I_o=5mA$ | | 4.3 | 8.0 | mA |

| | | | | | | |
|---|--------------|--|----|------|-----|----------------|
| Quiescent Current Change | ΔI_B | $9.0V \leq V_i \leq 25V$ | | | 1.3 | mA |
| Output noise voltage | V_N | $T_a = 25^\circ C, 10Hz \leq f \leq 100KHz$ | | 60 | | μV |
| Ripple rejection | RR | $10V \leq V_i \leq 20V, f = 120Hz$ | 59 | 75 | | dB |
| Dropout voltage | V_D | $T_j = 25^\circ C, I_o = 1.0A$ | | 2.0 | | V |
| Short Circuit Current Limit | I_{SC} | $T_j = 25^\circ C$ | | 1.3 | | A |
| Average temperature coefficient Of Output voltage | TC_{VO} | $0^\circ C \leq T_j \leq 125^\circ C, I_o = 5mA$ | | -0.8 | | mv/ $^\circ C$ |

ELECTRICAL CHARACTERISTICS ($V_{IN} = 14V, I_o = 500mA, 0^\circ C \leq T_j \leq 125^\circ C$)

| Parameter | Symbol | Test conditions | LGE7808D2T | | | UNIT |
|---|---------------|--|------------|---------|-----------|----------------|
| | | | MIN | TYP | MAX | |
| Output voltage | V_O | $T_j = 25^\circ C, I_o = 100mA$ | 7.7 | 8.0 | 8.3 | V |
| Load regulation | Reg_{load} | $T_j = 25^\circ C, I_o = 5mA - 1.5A$ $T_j = 25^\circ C, I_o = 250mA - 750mA$ | | 12 4 | 160 80 | mV |
| Input regulation | Reg_{Input} | $T_j = 25^\circ C, 10.5V \leq V_i \leq 25V$ $T_j = 25^\circ C, 11V \leq V_i \leq 17V$ | | 6 2 | 160 80 | mV |
| Output voltage | V_O | $10.5V \leq V_i \leq 23V$ | 7.6 | | 8.4 | V |
| Quiescent Current | I_B | $T_j = 25^\circ C, I_o = 5mA$ | | 4.3 | 8.0 | mA |
| Quiescent Current Change | ΔI_B | $10.5V \leq V_i \leq 25V$ | | | 1.0 | mA |
| Output noise voltage | V_N | $T_a = 25^\circ C, 10Hz \leq f \leq 100KHz$ | | 70 | | μV |
| Ripple rejection | RR | $11.5V \leq V_i \leq 21.5V, f = 120Hz$ | 58 | 74 | | dB |
| Dropout voltage | V_D | $T_j = 25^\circ C, I_o = 1.0A$ | | 2.0 | | V |
| Short Circuit Current Limit | I_{SC} | $T_j = 25^\circ C$ | | 1.1 | | A |
| Average temperature coefficient Of Output voltage | TC_{VO} | $0^\circ C \leq T_j \leq 125^\circ C, I_o = 5mA$ | | -1.0 | | mv/ $^\circ C$ |

ELECTRICAL CHARACTERISTICS ($V_{IN}=15V, I_o=500mA, 0^{\circ}C \leq T_j \leq 125^{\circ}C$)

| Parameter | Symbol | Test conditions | LGE7809D2T | | | UNIT |
|--|---------------|--|------------|----------|-----------|-----------------|
| | | | MIN | TYP | MAX | |
| Output voltage | V_o | $T_j=25^{\circ}C, I_o=100mA$ | 8.64 | 9.0 | 9.36 | V |
| Load regulation | Reg_{load} | $T_j=25^{\circ}C, I_o=5mA-1.5A$ $T_j=25^{\circ}C, I_o=250mA-750mA$ | | 12 4 | 180 90 | mV |
| Input regulation | Reg_{Input} | $T_j=25^{\circ}C, 11.5V \leq V_i \leq 26V$ $T_j=25^{\circ}C, 13V \leq V_i \leq 19V$ | | 7 2.5 | 180 90 | mV |
| Output voltage | V_o | $11.5V \leq V_i \leq 26V$ | 8.55 | | 9.45 | V |
| Quiescent Current | I_B | $T_j=25^{\circ}C, I_o=5mA$ | | 4.3 | 8.0 | mA |
| Quiescent Current Change | ΔI_B | $11.5V \leq V_i \leq 26V$ | | | 1.0 | mA |
| Output noise voltage | V_N | $T_a=25^{\circ}C, 10Hz \leq f \leq 100KHz$ | | 75 | | μV |
| Ripple rejection | RR | $12.5V \leq V_i \leq 22.5V, f=120Hz$ | 56 | 72 | | dB |
| Dropout voltage | V_D | $T_j=25^{\circ}C, I_o=1.0A$ | | 2.0 | | V |
| Short Circuit Current Limit | I_{sc} | $T_j=25^{\circ}C$ | | 1.0 | | A |
| Average temperature coefficient Of Output voltage | TC_{V_o} | $0^{\circ}C \leq T_j \leq 125^{\circ}C, I_o=5mA$ | | -1.1 | | mv/ $^{\circ}C$ |

ELECTRICAL CHARACTERISTICS ($V_{IN}=16V, I_o=500mA, 0^{\circ}C \leq T_j \leq 125^{\circ}C$)

| Parameter | Symbol | Test conditions | LGE7810D2T | | | UNIT |
|-------------------|---------------|--|------------|----------|------------|------|
| | | | MIN | TYP | MAX | |
| Output voltage | V_o | $T_j=25^{\circ}C, I_o=100mA$ | 9.6 | 10.0 | 10.4 | V |
| Load regulation | Reg_{load} | $T_j=25^{\circ}C, I_o=5mA-1.5A$ $T_j=25^{\circ}C, I_o=250mA-750mA$ | | 12 4 | 200 100 | mV |
| Input regulation | Reg_{Input} | $T_j=25^{\circ}C, 12.5V \leq V_i \leq 27V$ $T_j=25^{\circ}C, 14V \leq V_i \leq 20V$ | | 8 2.5 | 200 100 | mV |
| Output voltage | V_o | $12.5V \leq V_i \leq 25V$ | 9.5 | | 10.5 | V |
| Quiescent Current | I_B | $T_j=25^{\circ}C, I_o=5mA$ | | 4.3 | 8.0 | mA |

| | | | | | | |
|---|--------------|--|----|------|-----|----------------|
| Quiescent Current Change | ΔI_B | $12.5V \leq V_i \leq 27V$ | | | 1.0 | mA |
| Output noise voltage | V_N | $T_a = 25^\circ C, 10Hz \leq f \leq 100KHz$ | | 80 | | μV |
| Ripple rejection | RR | $13.5V \leq V_i \leq 23.5V, f = 120Hz$ | 55 | 72 | | dB |
| Dropout voltage | V_D | $T_j = 25^\circ C, I_o = 1.0A$ | | 2.0 | | V |
| Short Circuit Current Limit | I_{SC} | $T_j = 25^\circ C$ | | 0.9 | | A |
| Average temperature coefficient Of Output voltage | TC_{VO} | $0^\circ C \leq T_j \leq 125^\circ C, I_o = 5mA$ | | -1.3 | | mv/ $^\circ C$ |

ELECTRICAL CHARACTERISTICS ($V_{IN} = 19V, I_o = 500mA, 0^\circ C \leq T_j \leq 125^\circ C$)

| Parameter | Symbol | Test conditions | LGE7812D2T | | | UNIT |
|---|---------------|--|------------|---------|------------|----------------|
| | | | MIN | TYP | MAX | |
| Output voltage | V_O | $T_j = 25^\circ C, I_o = 100mA$ | 11.5 | 12.0 | 12.5 | V |
| Load regulation | Reg_{load} | $T_j = 25^\circ C, I_o = 5mA - 1.5A$ $T_j = 25^\circ C, I_o = 250mA - 750mA$ | | 12 4 | 240 120 | mV |
| Input regulation | Reg_{Input} | $T_j = 25^\circ C, 14.5V \leq V_i \leq 30V$ $T_j = 25^\circ C, 16V \leq V_i \leq 22V$ | | 10 3 | 240 120 | mV |
| Output voltage | V_O | $14.5V \leq V_i \leq 27V$ | 11.4 | | 12.6 | V |
| Quiescent Current | I_B | $T_j = 25^\circ C, I_o = 5mA$ | | 4.3 | 8.0 | mA |
| Quiescent Current Change | ΔI_B | $14.5V \leq V_i \leq 30V$ | | | 1.0 | mA |
| Output noise voltage | V_N | $T_a = 25^\circ C, 10Hz \leq f \leq 100KHz$ | | 90 | | μV |
| Ripple rejection | RR | $15V \leq V_i \leq 25V, f = 120Hz$ | 55 | 71 | | dB |
| Dropout voltage | V_D | $T_j = 25^\circ C, I_o = 1.0A$ | | 2.0 | | V |
| Short Circuit Current Limit | I_{SC} | $T_j = 25^\circ C$ | | 0.7 | | A |
| Average temperature coefficient Of Output voltage | TC_{VO} | $0^\circ C \leq T_j \leq 125^\circ C, I_o = 5mA$ | | -1.6 | | mv/ $^\circ C$ |

ELECTRICAL CHARACTERISTICS ($V_{IN}=23V, I_o=500mA, 0^{\circ}C \leq T_j \leq 125^{\circ}C$)

| Parameter | Symbol | Test conditions | LGE7815D2T | | | UNIT |
|--|---------------|--|------------|---------|------------|-----------------|
| | | | MIN | TYP | MAX | |
| Output voltage | V_O | $T_j=25^{\circ}C, I_o=100mA$ | 14.4 | 15.0 | 15.6 | V |
| Load regulation | Reg_{load} | $T_j=25^{\circ}C, I_o=5mA-1.5A$ $T_j=25^{\circ}C, I_o=250mA-750mA$ | | 12 4 | 300 150 | mV |
| Input regulation | Reg_{input} | $T_j=25^{\circ}C, 17.5V \leq V_i \leq 30V$ $T_j=25^{\circ}C, 20V \leq V_i \leq 26V$ | | 11 3 | 300 150 | mV |
| Output voltage | V_O | $17.5V \leq V_i \leq 30V$ | 14.25 | | 15.75 | V |
| Quiescent Current | I_B | $T_j=25^{\circ}C, I_o=5mA$ | | 4.4 | 8.0 | mA |
| Quiescent Current Change | ΔI_B | $17.5V \leq V_i \leq 30V$ | | | 1.0 | mA |
| Output noise voltage | V_N | $T_a=25^{\circ}C, 10Hz \leq f \leq 100KHz$ | | 110 | | μV |
| Ripple rejection | RR | $18.5V \leq V_i \leq 28.5V, f=120Hz$ | 54 | 70 | | dB |
| Dropout voltage | V_D | $T_j=25^{\circ}C, I_o=1.0A$ | | 2.0 | | V |
| Short Circuit Current Limit | I_{sc} | $T_j=25^{\circ}C$ | | 0.5 | | A |
| Average temperature coefficient Of Output voltage | TC_{V_O} | $0^{\circ}C \leq T_j \leq 125^{\circ}C, I_o=5mA$ | | -2.0 | | mv/ $^{\circ}C$ |

ELECTRICAL CHARACTERISTICS ($V_{IN}=27V, I_o=500mA, 0^{\circ}C \leq T_j \leq 125^{\circ}C$)

| Parameter | Symbol | Test conditions | LGE7818D2T | | | UNIT |
|-------------------|---------------|--|------------|---------|------------|------|
| | | | MIN | TYP | MAX | |
| Output voltage | V_O | $T_j=25^{\circ}C, I_o=100mA$ | 17.3 | 18.0 | 18.7 | V |
| Load regulation | Reg_{load} | $T_j=25^{\circ}C, I_o=5mA-1.5A$ $T_j=25^{\circ}C, I_o=250mA-750mA$ | | 12 4 | 360 180 | mV |
| Input regulation | Reg_{input} | $T_j=25^{\circ}C, 21V \leq V_i \leq 33V$ $T_j=25^{\circ}C, 24V \leq V_i \leq 30V$ | | 13 4 | 360 180 | mV |
| Output voltage | V_O | $21V \leq V_i \leq 33V$ | 17.1 | | 18.9 | V |
| Quiescent Current | I_B | $T_j=25^{\circ}C, I_o=5mA$ | | 4.5 | 8.0 | mA |

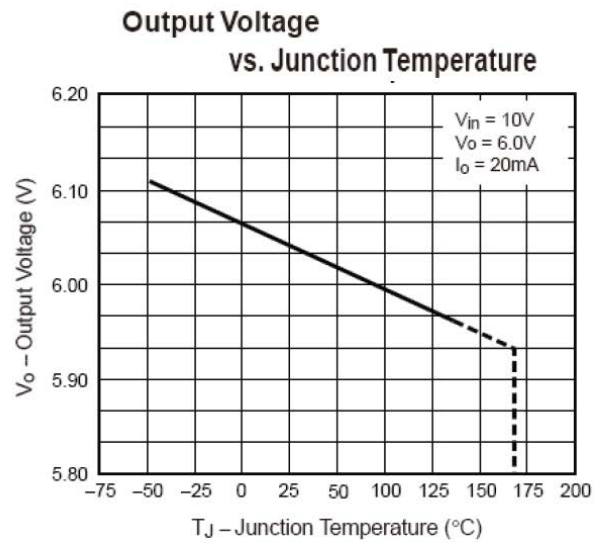
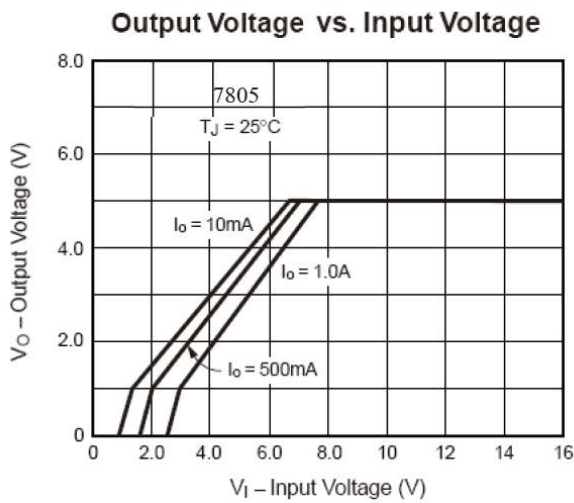
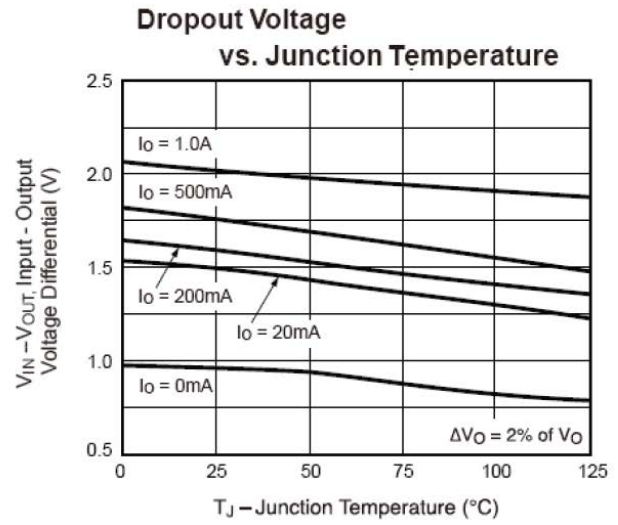
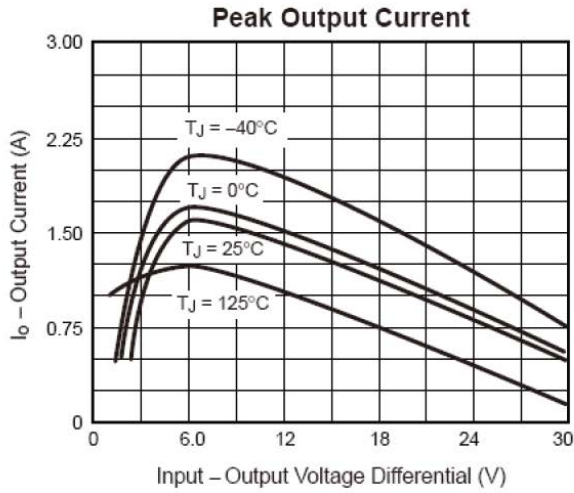
| | | | | | | |
|--|--------------|--|----|------|-----|----------------|
| Quiescent Current Change | ΔI_B | $21V \leq V_i \leq 33V$ | | | 1.0 | mA |
| Output noise voltage | V_N | $T_a = 25^\circ C, 10Hz \leq f \leq 100KHz$ | | 125 | | μV |
| Ripple rejection | RR | $22V \leq V_i \leq 32V, f = 120Hz$ | 52 | 68 | | dB |
| Dropout voltage | V_D | $T_j = 25^\circ C, I_o = 1.0A$ | | 2.0 | | V |
| Short Circuit Current Limit | I_{SC} | $T_j = 25^\circ C$ | | 0.4 | | A |
| Average temperature coefficient Of Output voltage | TC_{V_O} | $0^\circ C \leq T_j \leq 125^\circ C, I_o = 5mA$ | | -2.5 | | mv/ $^\circ C$ |

ELECTRICAL CHARACTERISTICS ($V_{IN} = 29V, I_o = 500mA, 0^\circ C \leq T_j \leq 125^\circ C$)

| Parameter | Symbol | Test conditions | LGE7820D2T | | | UNIT |
|--|---------------|--|------------|---------|------------|----------------|
| | | | MIN | TYP | MAX | |
| Output voltage | V_O | $T_j = 25^\circ C, I_o = 100mA$ | 19.2 | 20.0 | 20.8 | V |
| Load regulation | Reg_{load} | $T_j = 25^\circ C, I_o = 5mA - 1.5A$ $T_j = 25^\circ C, I_o = 250mA - 750mA$ | | 12 4 | 400 200 | mV |
| Input regulation | Reg_{Input} | $T_j = 25^\circ C, 23V \leq V_i \leq 35V$ $T_j = 25^\circ C, 26V \leq V_i \leq 32V$ | | 15 5 | 400 200 | mV |
| Output voltage | V_O | $23V \leq V_i \leq 35V$ | 19.0 | | 21.0 | V |
| Quiescent Current | I_B | $T_j = 25^\circ C, I_o = 5mA$ | | 4.6 | 8.0 | mA |
| Quiescent Current Change | ΔI_B | $23V \leq V_i \leq 35V$ | | | 1.0 | mA |
| Output noise voltage | V_N | $T_a = 25^\circ C, 10Hz \leq f \leq 100KHz$ | | 135 | | μV |
| Ripple rejection | RR | $24V \leq V_i \leq 34V, f = 120Hz$ | 50 | 66 | | dB |
| Dropout voltage | V_D | $T_j = 25^\circ C, I_o = 1.0A$ | | 2.0 | | V |
| Short Circuit Current Limit | I_{SC} | $T_j = 25^\circ C$ | | 0.4 | | A |
| Average temperature coefficient Of Output voltage | TC_{V_O} | $0^\circ C \leq T_j \leq 125^\circ C, I_o = 5mA$ | | -3.0 | | mv/ $^\circ C$ |

ELECTRICAL CHARACTERISTICS ($V_{IN}=33V, I_o=500mA, 0^{\circ}C \leq T_j \leq 125^{\circ}C$)

| Parameter | Symbol | Test conditions | LGE7824D2T | | | UNIT |
|--|---------------|--|------------|---------|------------|-----------------|
| | | | MIN | TYP | MAX | |
| Output voltage | V_o | $T_j=25^{\circ}C, I_o=100mA$ | 23.0 | 24.0 | 25.0 | V |
| Load regulation | Reg_{load} | $T_j=25^{\circ}C, I_o=5mA-1.5A$ $T_j=25^{\circ}C, I_o=250mA-750mA$ | | 12 4 | 480 240 | mV |
| Input regulation | Reg_{input} | $T_j=25^{\circ}C, 27V \leq V_i \leq 38V$ $T_j=25^{\circ}C, 30V \leq V_i \leq 36V$ | | 18 6 | 480 240 | mV |
| Output voltage | V_o | $27V \leq V_i \leq 38V$ | 22.8 | | 25.2 | V |
| Quiescent Current | I_B | $T_j=25^{\circ}C, I_o=5mA$ | | 4.6 | 8.0 | mA |
| Quiescent Current Change | ΔI_B | $27V \leq V_i \leq 38V$ | | | 1.0 | mA |
| Output noise voltage | V_N | $T_a=25^{\circ}C, 10Hz \leq f \leq 100KHz$ | | 150 | | μV |
| Ripple rejection | RR | $28V \leq V_i \leq 38V, f=120Hz$ | 50 | 66 | | dB |
| Dropout voltage | V_D | $T_j=25^{\circ}C, I_o=1.0A$ | | 2.0 | | V |
| Short Circuit Current Limit | I_{sc} | $T_j=25^{\circ}C$ | | 0.3 | | A |
| Average temperature coefficient Of Output voltage | TC_{V_o} | $0^{\circ}C \leq T_j \leq 125^{\circ}C, I_o=5mA$ | | -3.5 | | mv/ $^{\circ}C$ |

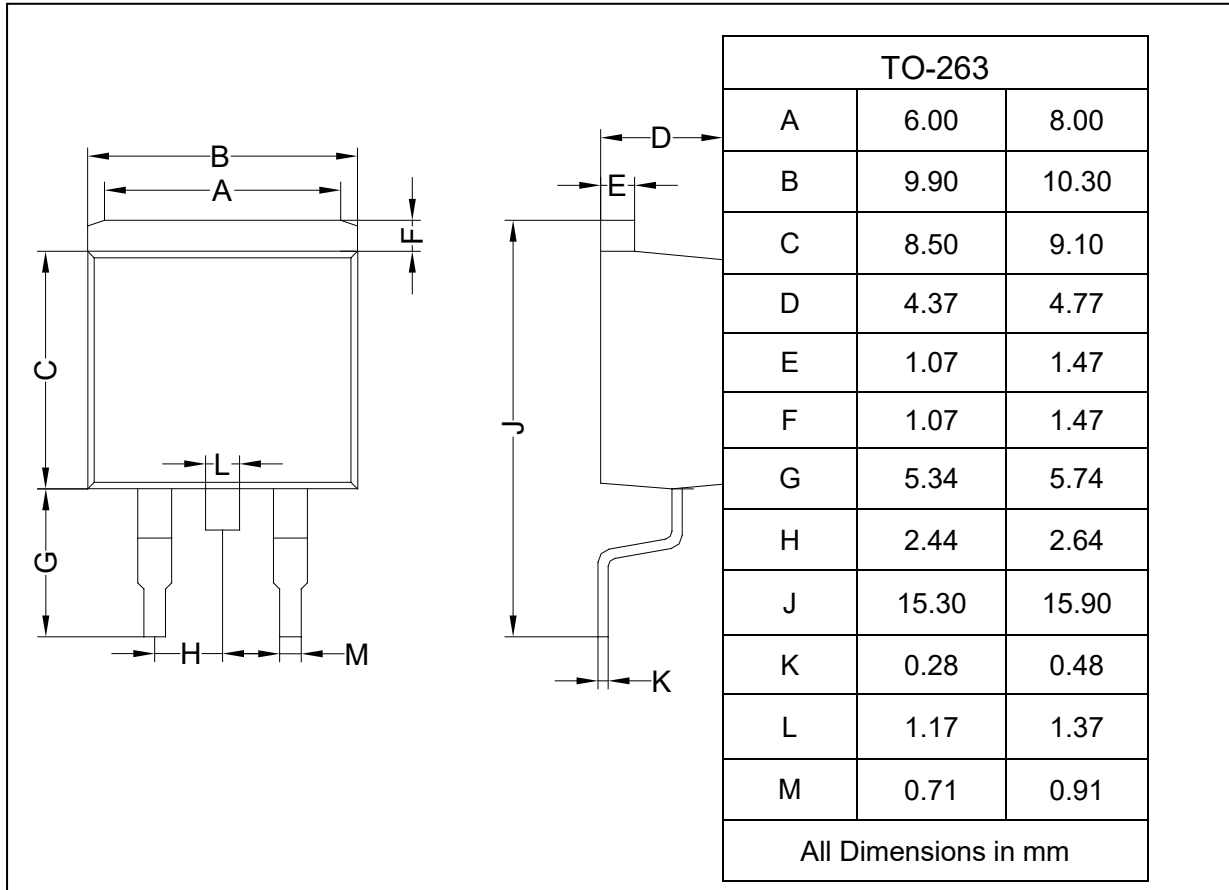
TYPICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified


PACKAGE OUTLINE

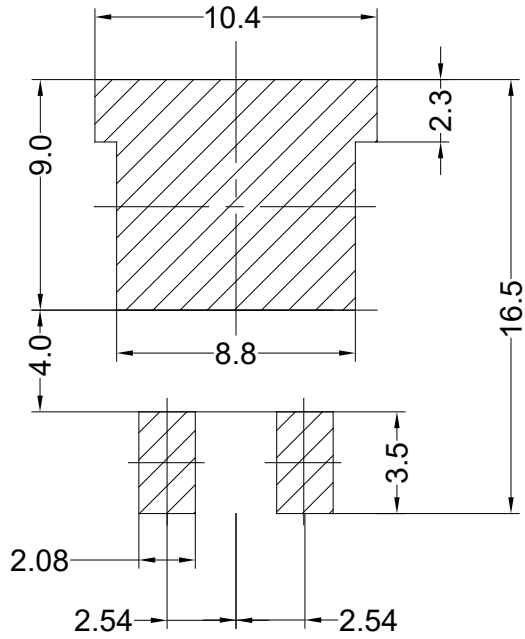
Plastic surface mounted package

Plastic surface mounted package

TO-263



SOLDERING FOOTPRINT



Unit:mm