

Product Summary

| $V_{(BR)DSS}$ | $R_{DS(on)TYP}$ | I_D |
|---------------|--------------------|-------|
| 20V | 18m Ω @4.5V | 5A |
| | 24m Ω @2.5V | |

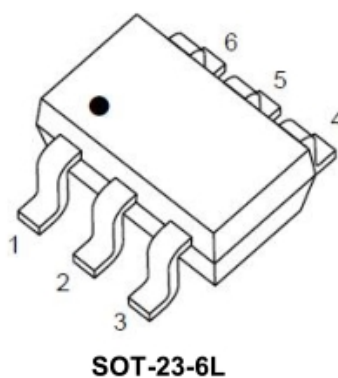
Feature

- Low gate charge
- Low $R_{DS(on)}$

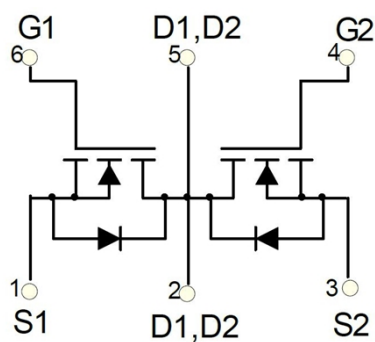
Applications

- Battery protection
- Switching application.

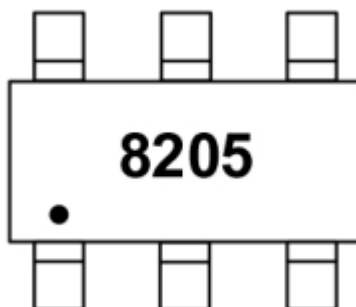
Package



Circuit diagram



Marking



Absolute maximum ratings

($T_a=25^{\circ}\text{C}$ unless otherwise noted)

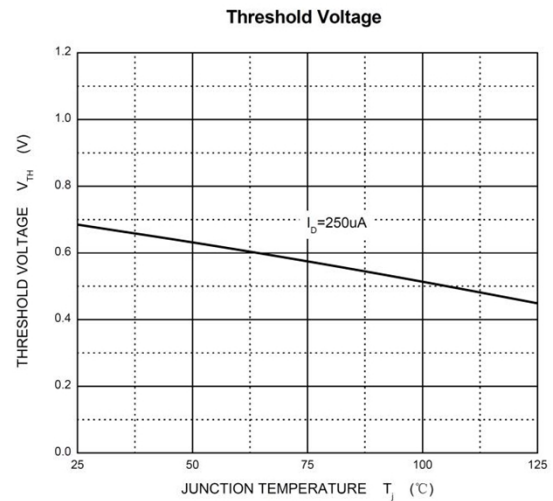
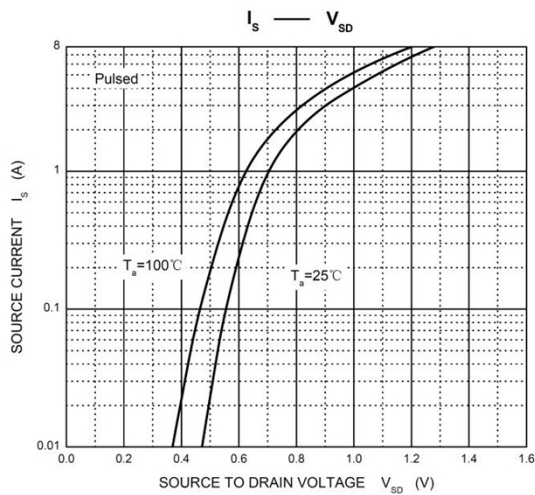
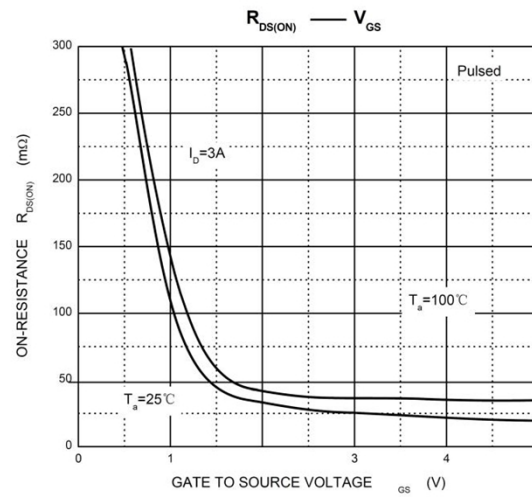
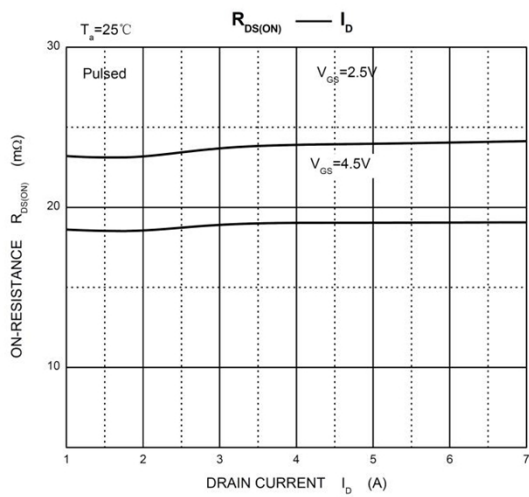
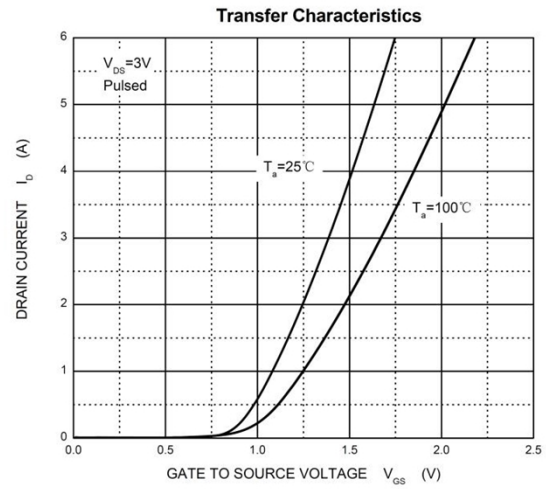
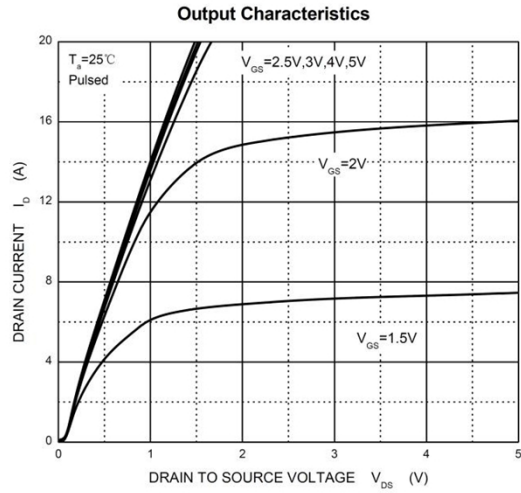
| Parameter | Symbol | Value | Unit |
|--|-----------------|-----------|-----------------------------|
| Drain-Source Voltage | V_{DS} | 20 | V |
| Gate-Source Voltage | V_{GS} | ± 12 | V |
| Continuous Drain Current($t \leq 10\text{s}$) | I_D | 5 | A |
| Pulsed Drain Current | I_{DM} | 25 | A |
| Power Dissipation($t \leq 10\text{s}$) | P_D | 1.5 | W |
| Thermal Resistance from Junction to Ambient($t \leq 10\text{s}$) | $R_{\theta JA}$ | 83.3 | $^{\circ}\text{C}/\text{W}$ |
| Junction Temperature | T_J | 150 | $^{\circ}\text{C}$ |
| Storage Temperature | T_{STG} | -55~ +150 | $^{\circ}\text{C}$ |

Electrical characteristics

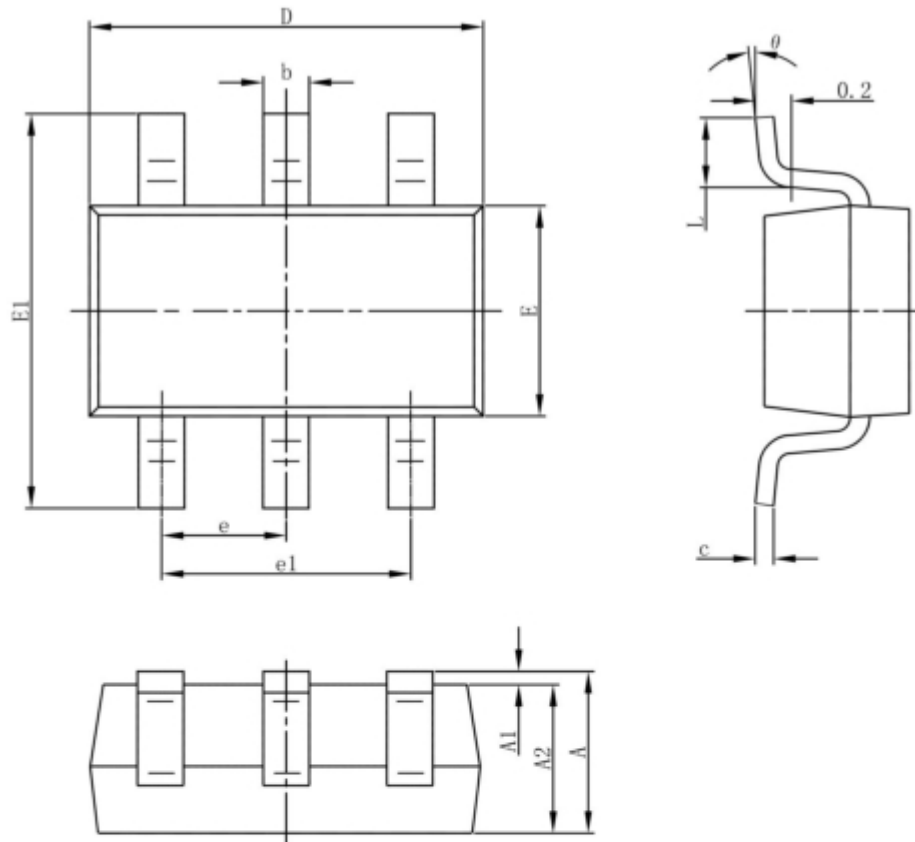
($T_A=25^{\circ}\text{C}$, unless otherwise noted)

| Parameter | Symbol | Test Condition | Min. | Typ. | Max. | Unit |
|---------------------------------|---------------------|---|------|------|------|------|
| Static Characteristics | | | | | | |
| Drain-source breakdown voltage | BV (BR)DSS | V _{GS} = 0V, I _D =250μA | 20 | | | V |
| Zero gate voltage drain current | I _{DSS} | V _{DS} =20V, V _{GS} = 0V | | | 1 | uA |
| Gate-body leakage current | I _{GSS} | V _{GS} = ±12V, V _{DS} = 0V | | | ±0.1 | uA |
| Gate threshold voltage | V _{GS(th)} | V _{DS} =V _{GS} , I _D =250μA | 0.5 | 0.66 | 1.2 | V |
| Drain-source on-resistance | R _{DS(on)} | V _{GS} =4.5V, I _D =4.5A | 12 | 18 | 27 | mΩ |
| | | V _{GS} =4.2V, I _D =4.5A | 12.5 | 19.5 | 28.5 | |
| | | V _{GS} =3.8V, I _D =4A | 13 | 21 | 30 | |
| | | V _{GS} =3.1V, I _D =3.5A | 14 | 22.5 | 31 | |
| | | V _{GS} =2.5V, I _D =3.5A | 15 | 24 | 32 | |
| Forward transconductance | g _{FS} | V _{DS} =5V, I _D =7A | 9 | | | S |
| Diode forward voltage | V _{SD} | I _S =1.7A, V _{GS} =0V | | 0.77 | 1.2 | V |
| Dynamic Characteristics | | | | | | |
| Total Gate Charge | Q _g | V _{DS} =10V, V _{GS} =4.5V, I _D =4A | | 11 | | nC |
| Gate-Source Charge | Q _{gs} | | | 2.3 | | |
| Gate-Drain Charge | Q _{gd} | | | 2.5 | | |
| Input capacitance | C _{iSS} | V _{DS} =8V, V _{GS} =0V, f=1MHz | | 800 | | pF |
| Output capacitance | C _{oss} | | | 155 | | |
| Reverse transfer capacitance | C _{rss} | | | 125 | | |
| Switching Characteristics | | | | | | |
| Turn-on Delay Time | T _{d(on)} | V _{DD} =10V, V _{GS} =4V, I _D =1A, R _{GEN} =10Ω | | 18 | | nS |
| Turn-on Rise Time | T _r | | | 5 | | |
| Turn-Off Delay Time | T _{d(off)} | | | 43 | | |
| Turn-Off Fall Time | t _f | | | 20 | | |

Typical Characteristics

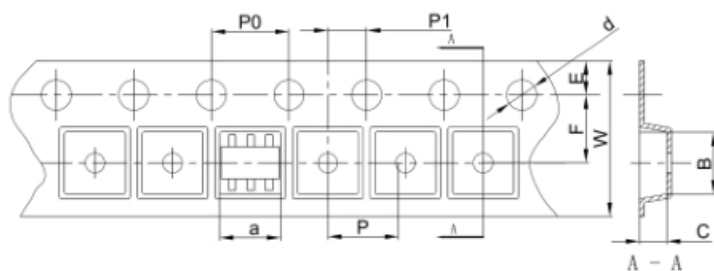


SOT-23-6L Package Information



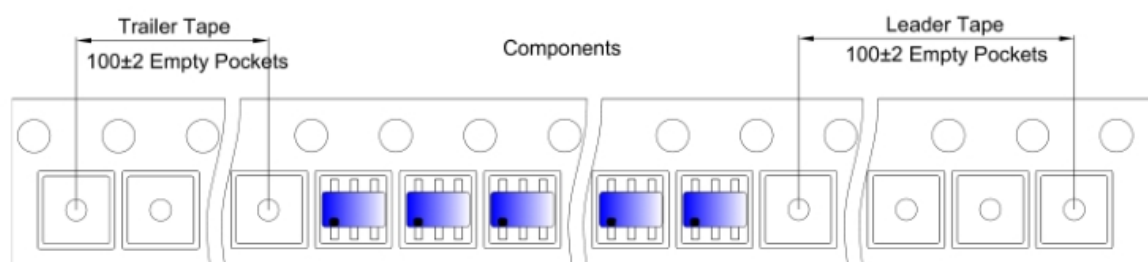
| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min | Max | Min | Max |
| A | 1.050 | 1.250 | 0.041 | 0.049 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 1.050 | 1.150 | 0.041 | 0.045 |
| b | 0.300 | 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 |
| θ | 0° | 8° | 0° | 8° |

SOT-23-6L Embossed Carrier Tape

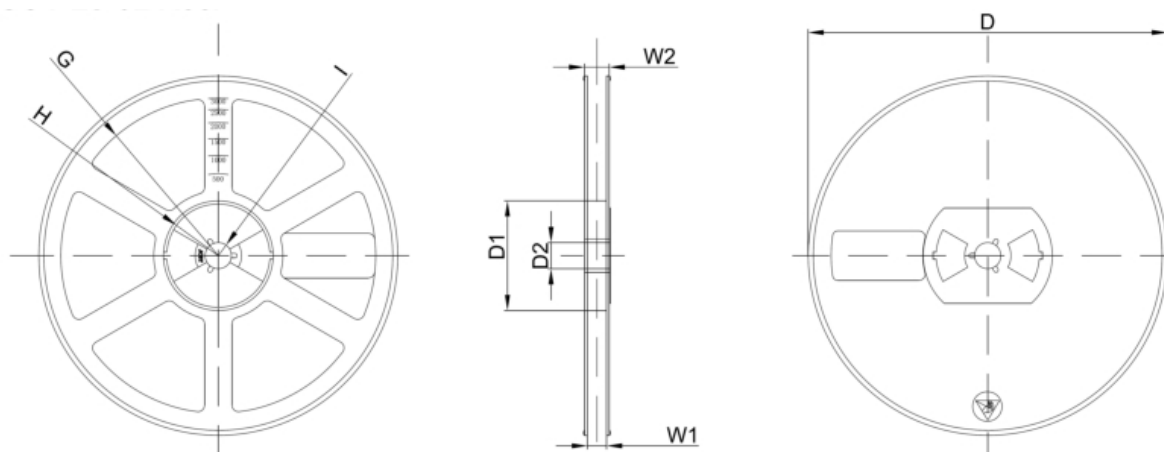


| Dimensions are in millimeter | | | | | | | | | | |
|------------------------------|------|------|------|-------|------|------|------|------|------|------|
| Pkg type | a | B | C | d | E | F | P0 | P | P1 | W |
| SOT-23-6L | 3.17 | 3.23 | 1.37 | Ø1.55 | 1.75 | 3.50 | 4.00 | 4.00 | 2.00 | 8.00 |

SOT-23-6L Tape Leader and Trailer



SOT-23-6L Reel



| Dimensions are in millimeter | | | | | | | | |
|------------------------------|---------|-------|-------|--------|--------|-------|------|-------|
| Reel Option | D | D1 | D2 | G | H | I | W1 | W2 |
| 7" Dia | Ø180.00 | 60.00 | 13.00 | R78.00 | R25.60 | R6.50 | 9.50 | 13.10 |

| REEL | Reel Size | Box | Box Size(mm) | Carton | Carton Size(mm) | G.W.(kg) |
|----------|-----------|------------|--------------|-------------|-----------------|----------|
| 3000 pcs | 7 inch | 30,000 pcs | 203×203×195 | 120,000 pcs | 438×438×220 | |