



Micro Commercial Components



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 130 W Cochran St, Unit B
 Simi Valley, CA 93065
 Tel:818-701-4933

MCS2305B

P-Channel Enhancement Mode Field Effect Transistor

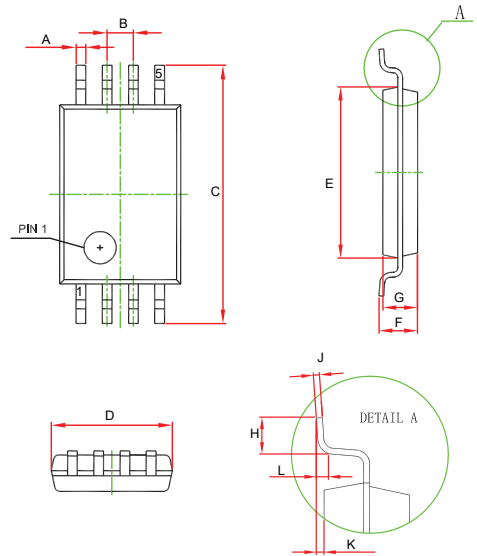
Features

- Halogen free available upon request by adding suffix "-HF"
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- TrenchFET Power MOSFET
- Load Switch for Portable Devices
- DC/DC Converter
- TSSOP-8 Package
- Marking Code: S5B

Maximum Ratings @ 25°C Unless Otherwise Specified

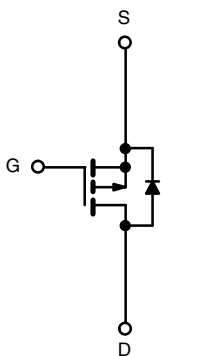
| Symbol | Parameter | Rating | Unit |
|------------------|---|-------------|------|
| V _{DS} | Drain-source Voltage | -20 | V |
| I _D | Continuous Drain Current | -8.2 | A |
| I _S | Continuous Source-Drain Diode Current | -0.95 | A |
| V _{GS} | Gate-source Voltage | ±8 | V |
| P _D | Total Power Dissipation | 1.05 | W |
| R _{θJA} | Thermal Resistance Junction to Ambient ^D | 120 | °C/W |
| T _J | Operating Junction Temperature | -55 to +150 | °C |
| T _{STG} | Storage Temperature | -55 to +150 | °C |

TSSOP-8



| DIM | Dimensions | | | | NOTE |
|-----|------------|-------|-----------|-------|------|
| | INCHES | | MM | | |
| | MIN | MAX | MIN | MAX | |
| A | 0.007 | .011 | 0.170 | 0.270 | |
| B | 0.026BSC. | | 0.650BSC. | | |
| C | 0.244 | 0.260 | 6.200 | 6.600 | |
| D | 0.112 | 0.120 | 2.850 | 3.050 | |
| E | 0.169 | 0.177 | 4.300 | 4.500 | |
| F | 0.039 | 0.047 | 1.000 | 1.200 | |
| G | 0.035 | 0.043 | 0.900 | 1.100 | |
| H | 0.016 | 0.031 | 0.400 | 0.800 | |
| J | 0.003 | 0.008 | 0.077 | 0.200 | |
| K | 0.001 | 0.007 | 0.020 | 0.180 | |
| L | 0.010TYP. | | 0.250TYP. | | |

Internal Block Diagram



P-Channel MOSFET

Pin1&5&8----Drain
 Pin2&3&6&7----Source
 Pin4----Gate

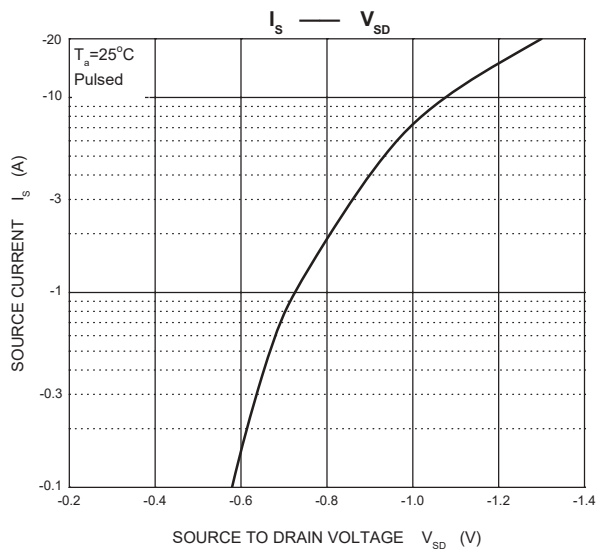
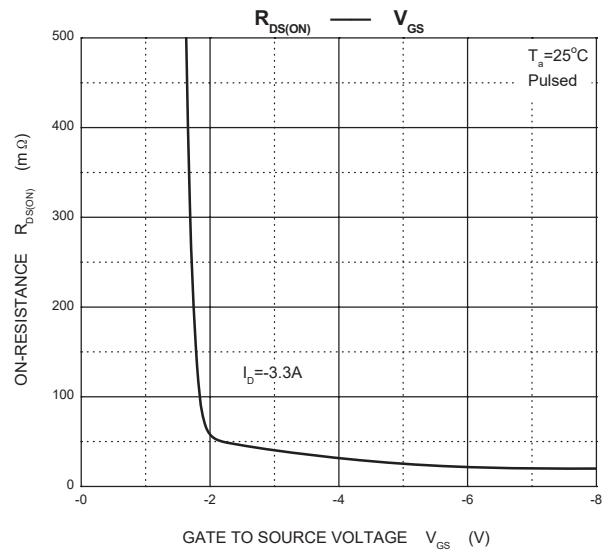
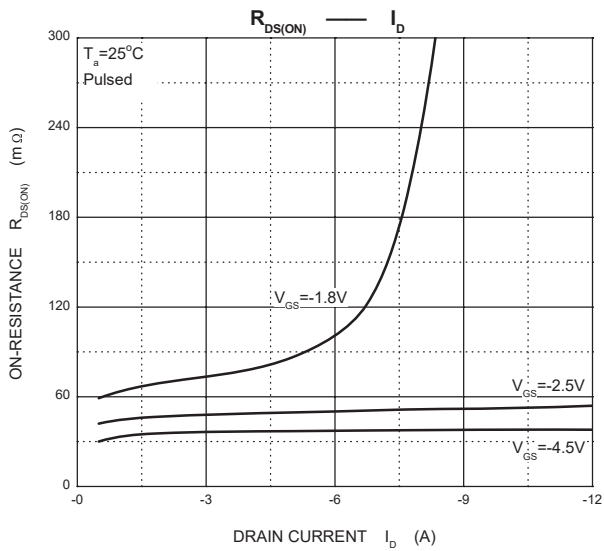
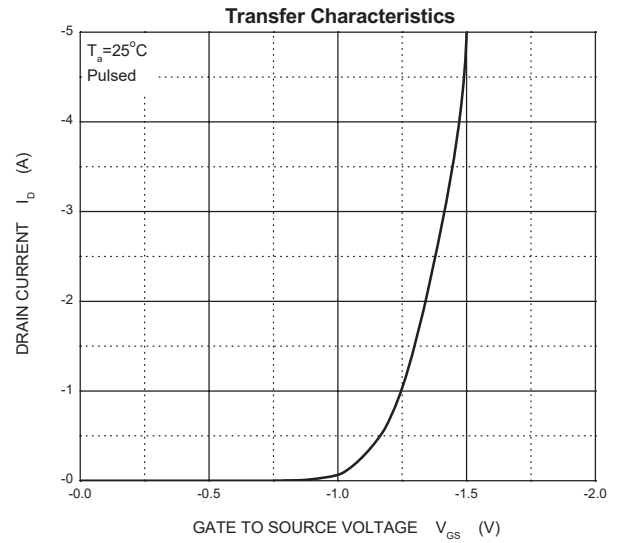
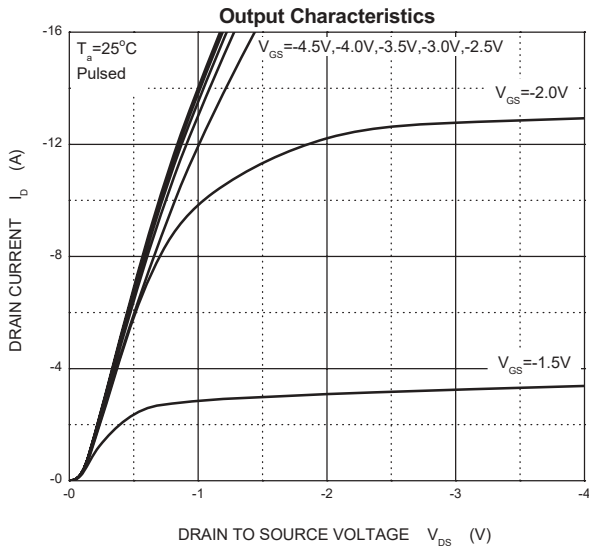
Electrical characteristics (T_a=25°C unless otherwise noted)

| Parameter | Symbol | Test Condition | Min | Typ | Max | Units |
|--|----------------------|---|-------|------|-------|-------|
| Static | | | | | | |
| Drain-source breakdown voltage | V _{(BR)DSS} | V _{GS} = 0V, I _D = -250μA | -20 | | | V |
| Gate-source threshold voltage | V _{GS(th)} | V _{DS} = V _{GS} , I _D = -250μA | -0.55 | | -0.9 | |
| Gate-source leakage | I _{GSS} | V _{DS} = 0V, V _{GS} = ±8V | | | ±100 | nA |
| Zero gate voltage drain current | I _{DSS} | V _{DS} = -20V, V _{GS} = 0V | | | -1 | μA |
| Drain-source on-state resistance ^a | R _{DS(on)} | V _{GS} = -4.5V, I _D = -4.2A | | | 0.046 | Ω |
| | | V _{GS} = -2.5V, I _D = -3.2A | | | 0.069 | |
| | | V _{GS} = -1.8V, I _D = -2.2A | | | 0.14 | |
| Forward transconductance ^a | g _{fs} | V _{DS} = -5V, I _D = -4.1A | 6 | | | S |
| Dynamic | | | | | | |
| Input capacitance ^{b,c} | C _{iSS} | V _{DS} = -4V, V _{GS} = 0V, f = 1MHz | | 740 | | pF |
| Output capacitance ^{b,c} | C _{oss} | | | 290 | | |
| Reverse transfer capacitance ^{b,c} | C _{rSS} | | | 190 | | |
| Total gate charge ^b | Q _g | V _{DS} = -4V, V _{GS} = -4.5V, I _D = -4.1A | | 7.8 | 15 | nC |
| | | V _{DS} = -4V, V _{GS} = -2.5V, I _D = -4.1A | | 4.5 | 9 | |
| Gate-source charge ^b | Q _{gs} | | | 1.2 | | |
| Gate-drain charge ^b | Q _{gd} | | | 1.6 | | |
| Gate resistance ^{b,c} | R _g | f = 1MHz | 1.4 | 7 | 14 | Ω |
| Turn-on delay time ^{b,c} | t _{d(on)} | V _{DD} = -4V, R _L = 1.2Ω, I _D = -3.3A, V _{GEN} = -4.5V, R _g = 1Ω | | 13 | 20 | ns |
| Rise time ^{b,c} | t _r | | | 35 | 53 | |
| Turn-off Delay time ^{b,c} | t _{d(off)} | | | 32 | 48 | |
| Fall time ^{b,c} | t _f | | | 10 | 20 | |
| Turn-on delay time ^{b,c} | t _{d(on)} | | | 5 | 10 | |
| Rise time ^{b,c} | t _r | | | 11 | 17 | |
| Turn-off delay time ^{b,c} | t _{d(off)} | | | 22 | 33 | |
| Fall time ^{b,c} | t _f | | | 16 | 24 | |
| Drain-source body diode characteristics | | | | | | |
| Continuous source-drain diode current | I _S | T _C = 25°C | | | -1.4 | A |
| Pulse diode forward current ^a | I _{SM} | | | | -10 | |
| Body diode voltage | V _{SD} | I _F = -3.3A | | -0.8 | -1.2 | V |

Note :

- a. Pulse Test ; Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
- b. Guaranteed by design, not subject to production testing.
- c. These parameters have no way to verify.

MCS2305B





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Ordering Information :

| Device | Packing |
|----------------|-----------------------|
| Part Number-TP | Tape&Reel: 3Kpcs/Reel |

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
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Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)

Факс: 8 (812) 320-02-42

Электронная почта: org@eplast1.ru

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.