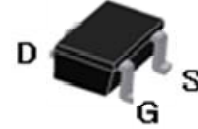
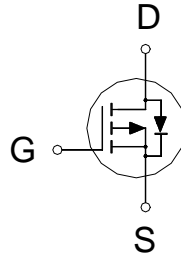


P-Channel Logic Level Enhancement Mode Field Effect Transistor

Product Summary:

| | |
|---------------------|---------------|
| BV_{DSS} | -30V |
| $R_{DS(on)}$ (MAX.) | 125m Ω |
| I_D | -3.1A |



Pb-Free Lead Plating & Halogen Free



ABSOLUTE MAXIMUM RATINGS ($T_A = 25\text{ }^\circ\text{C}$ Unless Otherwise Noted)

| PARAMETERS/TEST CONDITIONS | | SYMBOL | LIMITS | UNIT |
|--|----------------------------------|------------------|------------|------------------|
| Gate-Source Voltage | | V_{GS} | ± 20 | V |
| Continuous Drain Current | $T_A = 25\text{ }^\circ\text{C}$ | I_D | -3.1 | A |
| | $T_A = 70\text{ }^\circ\text{C}$ | | -2.1 | |
| Pulsed Drain Current ¹ | | I_{DM} | -12 | |
| Power Dissipation | $T_A = 25\text{ }^\circ\text{C}$ | P_D | 1.04 | W |
| | $T_A = 70\text{ }^\circ\text{C}$ | | 0.66 | |
| Operating Junction & Storage Temperature Range | | T_{j}, T_{stg} | -55 to 150 | $^\circ\text{C}$ |

THERMAL RESISTANCE RATINGS

| THERMAL RESISTANCE | SYMBOL | TYPICAL | MAXIMUM | UNIT |
|----------------------------------|---|---------|---------|---------------------------|
| Junction-to-Ambient ³ | $R_{\theta JA}$ ($T \leq 10\text{sec}$) | | 83 | $^\circ\text{C}/\text{W}$ |
| | $R_{\theta JA}$ (Steady State) | | 120 | |

¹Pulse width limited by maximum junction temperature.

²Duty cycle $\leq 1\%$

³The device mounted on a 1 in² pad of 2 oz copper.



ELECTRICAL CHARACTERISTICS (T_J = 25 °C, Unless Otherwise Noted)

| PARAMETER | SYMBOL | TEST CONDITIONS | LIMITS | | | UNIT |
|---|----------------------|---|--------|------|------|------|
| | | | MIN | TYP | MAX | |
| STATIC | | | | | | |
| Drain-Source Breakdown Voltage | V _{(BR)DSS} | V _{GS} = 0V, I _D = -250μA | -30 | | | V |
| Gate Threshold Voltage | V _{GS(th)} | V _{DS} = V _{GS} , I _D = -250μA | -1.0 | -1.6 | -3.0 | |
| Gate-Body Leakage | I _{GSS} | V _{DS} = 0V, V _{GS} = ±20V | | | ±100 | nA |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} = -24V, V _{GS} = 0V | | | -1 | μA |
| | | V _{DS} = -20V, V _{GS} = 0V, T _J = 125 °C | | | -10 | |
| On-State Drain Current ¹ | I _{D(ON)} | V _{DS} = -5V, V _{GS} = -10V | -3.1 | | | A |
| Drain-Source On-State Resistance ¹ | R _{DS(ON)} | V _{GS} = -10V, I _D = -3.1A | | 100 | 125 | mΩ |
| | | V _{GS} = -4.5V, I _D = -2A | | 140 | 190 | |
| Forward Transconductance ¹ | g _{fs} | V _{DS} = -5V, I _D = -3A | | 4.5 | | S |
| DYNAMIC | | | | | | |
| Input Capacitance | C _{iss} | V _{GS} = 0V, V _{DS} = -15V, f = 1MHz | | 294 | | pF |
| Output Capacitance | C _{oss} | | | 41 | | |
| Reverse Transfer Capacitance | C _{rss} | | | 24 | | |
| Total Gate Charge ^{1,2} | Q _g | V _{DS} = -15V, V _{GS} = -10V, I _D = -2.7A | | 6.3 | | nC |
| Gate-Source Charge ^{1,2} | Q _{gs} | | | 0.8 | | |
| Gate-Drain Charge ^{1,2} | Q _{gd} | | | 1.4 | | |
| Turn-On Delay Time ^{1,2} | t _{d(on)} | V _{DS} = -15V, I _D = -1A, V _{GS} = -10V, R _{GS} = 6Ω | | 10 | | nS |
| Rise Time ^{1,2} | t _r | | | 20 | | |
| Turn-Off Delay Time ^{1,2} | t _{d(off)} | | | 15 | | |
| Fall Time ^{1,2} | t _f | | | 12 | | |
| SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_C = 25 °C) | | | | | | |
| Continuous Current | I _S | | | | -2 | A |
| Pulsed Current ³ | I _{SM} | | | | -8 | |
| Forward Voltage ¹ | V _{SD} | I _F = I _S , V _{GS} = 0V | | | 1.2 | V |

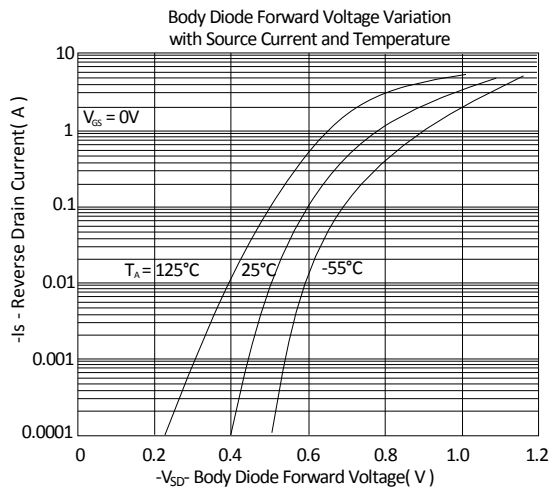
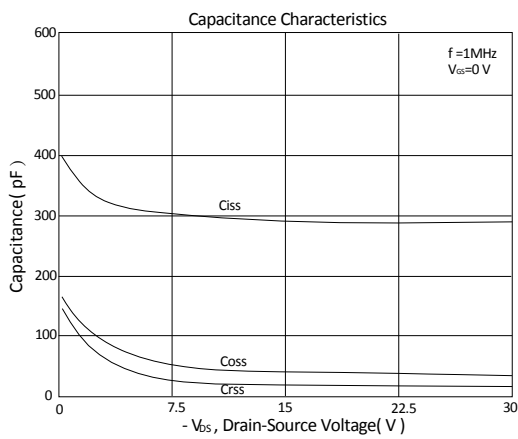
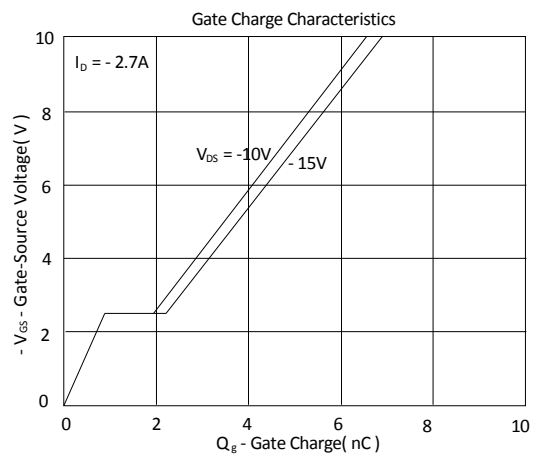
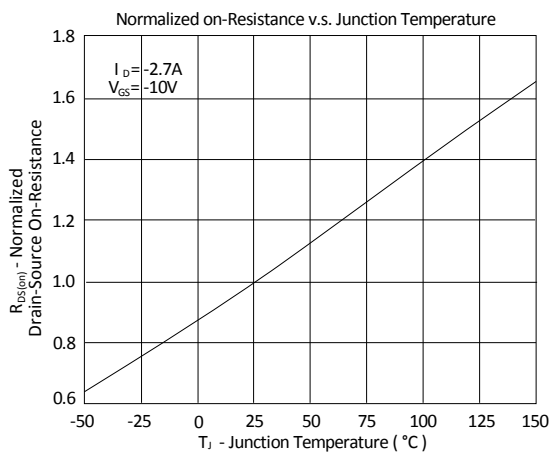
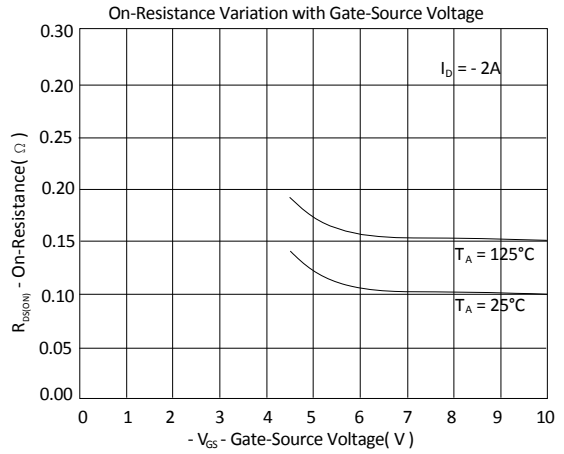
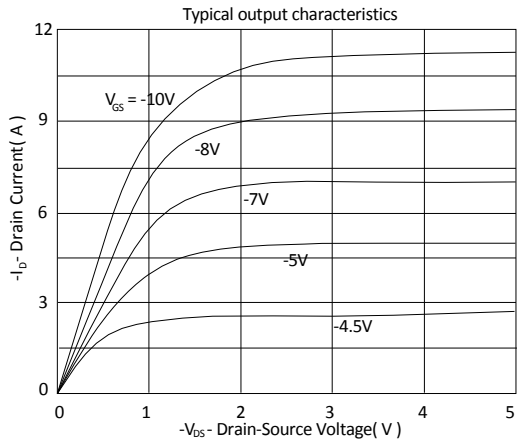
¹Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

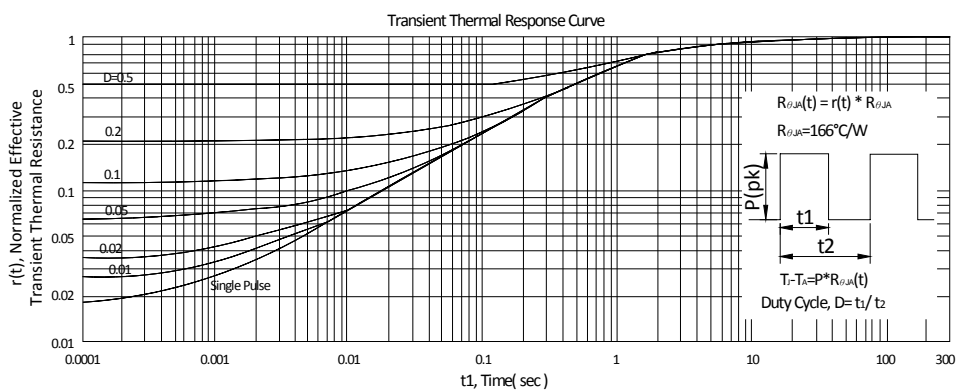
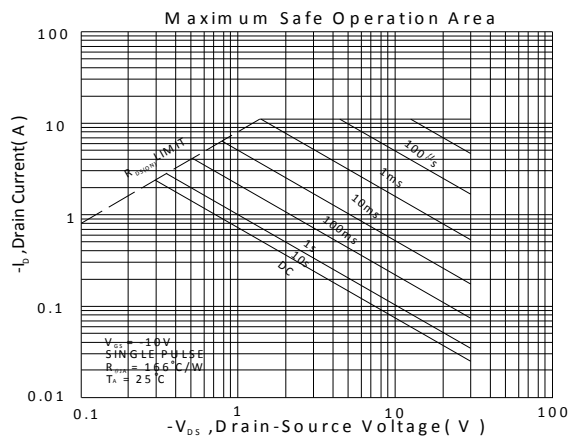
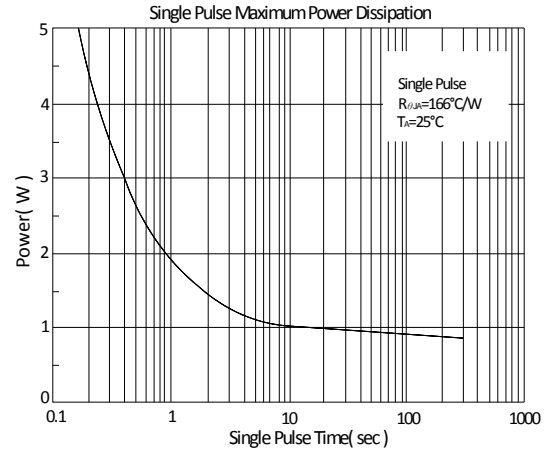
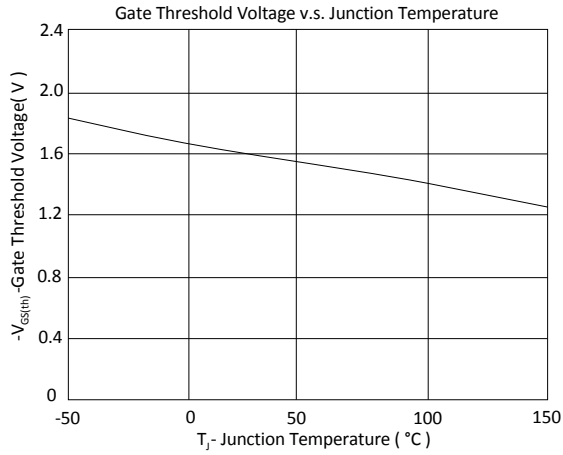
²Independent of operating temperature.

³Pulse width limited by maximum junction temperature.



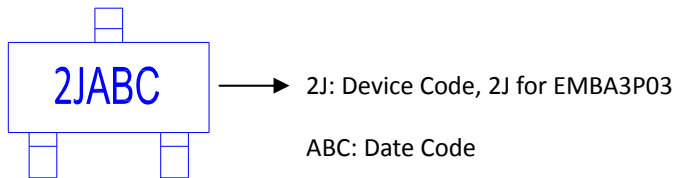
TYPICAL CHARACTERISTICS



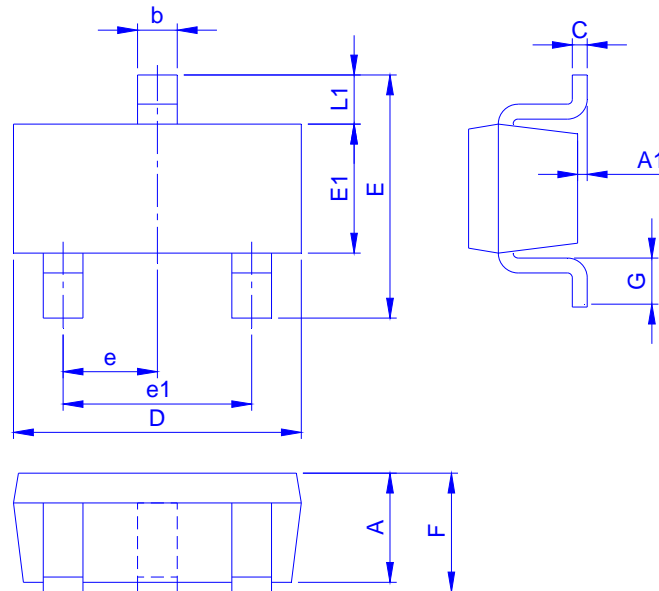


Ordering & Marking Information:

Device Name: EMBA3P03JS for SOT-23



Outline Drawing



Dimension in mm

| Dimension | A | A1 | b | C | D | E | E1 | e | e1 | F | G | L1 |
|-----------|------|-----|-----|------|------|------|-----|------|-----|------|-----|------|
| Min. | 0.70 | 0 | 0.3 | 0.08 | 2.80 | 2.25 | 1.2 | 0.90 | | 0.80 | 0.3 | 0.50 |
| Typ. | | | | | 2.90 | | | 0.95 | 1.9 | | | |
| Max. | 1.15 | 0.1 | 0.5 | 0.20 | 3.02 | 3.00 | 1.7 | 1.00 | | 1.25 | 0.6 | 0.75 |

Footprint

