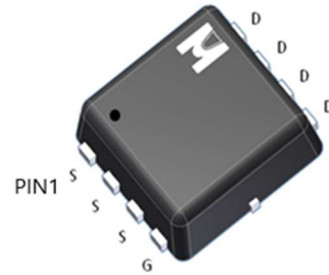
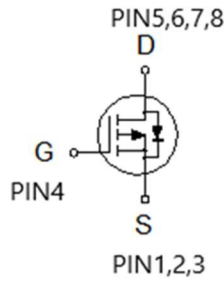




P-Channel Logic Level Enhancement Mode Field Effect Transistor

Product Summary:

| | |
|---------------------|--------------|
| BV_{DSS} | -30V |
| $R_{DS(on)}$ (MAX.) | 12m Ω |
| I_D | -21A |



P-Channel MOSFET

UIS, R_g 100% Tested

Pb-Free Lead Plating & Halogen Free



ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C Unless Otherwise Noted)

| PARAMETERS/TEST CONDITIONS | | SYMBOL | LIMITS | UNIT |
|--|---|-----------------------------------|------------|------|
| Gate-Source Voltage | | V _{GS} | ±25 | V |
| Continuous Drain Current | T _C = 25 °C | I _D | -21 | A |
| | T _A = 25 °C | | -12 | |
| | T _C = 100 °C | | -16 | |
| Pulsed Drain Current ¹ | | I _{DM} | -84 | |
| Avalanche Current | | I _{AS} | -43 | |
| Avalanche Energy | L = 0.1mH, I _{AS} = -43A, R _G = 25 Ω | E _{AS} | 92 | mJ |
| Repetitive Avalanche Energy ² | L = 0.05mH | E _{AR} | 46 | |
| Power Dissipation | T _C = 25 °C | P _D | 21 | W |
| | T _C = 100 °C | | 8.3 | |
| Power Dissipation | T _A = 25 °C | P _D | 2.5 | W |
| | T _A = 100 °C | | 1 | |
| Operating Junction & Storage Temperature Range | | T _J , T _{stg} | -55 to 150 | °C |

100% UIS testing in condition of V_D = -20V, L = 0.1mH, V_G = -10V, I_L = -25A, Rated V_{DS} = -30V P-CH

THERMAL RESISTANCE RATINGS

| THERMAL RESISTANCE | SYMBOL | TYPICAL | MAXIMUM | UNIT |
|----------------------------------|------------------|---------|---------|--------|
| Junction-to-Case | R _{θJC} | | 6 | °C / W |
| Junction-to-Ambient ³ | R _{θJA} | | 50 | |

¹Pulse width limited by maximum junction temperature.

²Duty cycle ≤ 1%

³50°C / W when 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 | -1.5 | -3 | |
| Gate-Body Leakage | I _{GSS} | V _{DS} = 0V, V _{GS} = ±20V | | | ±100 | nA |
| | | V _{DS} = 0V, V _{GS} = ±25V | | | ±500 | |
| 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 | -21 | | | A |
| Drain-Source On-State Resistance ¹ | R _{DS(ON)} | V _{GS} = -10V, I _D = -13A | | 10.5 | 12 | mΩ |
| | | V _{GS} = -4.5V, I _D = -9A | | 15 | 20 | |
| Forward Transconductance ¹ | g _{fs} | V _{DS} = -5V, I _D = -13A | | 30 | | S |
| DYNAMIC | | | | | | |
| Input Capacitance | C _{iss} | V _{GS} = 0V, V _{DS} = -15V, f = 1MHz | | 2363 | | pF |
| Output Capacitance | C _{oss} | | | 385 | | |
| Reverse Transfer Capacitance | C _{rss} | | | 326 | | |
| Gate Resistance | R _g | V _{GS} = 15mV, V _{DS} = 0V, f = 1MHz | | 4.0 | | Ω |
| Total Gate Charge ^{1,2} | Q _g (V _{GS} =10V) | V _{DS} = -15V, V _{GS} = -10V, I _D = -13A | | 45 | | nC |
| | Q _g (V _{GS} =4.5V) | | | 20 | | |
| Gate-Source Charge ^{1,2} | Q _{gs} | | | 5.6 | | |
| Gate-Drain Charge ^{1,2} | Q _{gd} | | | 8.5 | | |
| Turn-On Delay Time ^{1,2} | t _{d(on)} | | V _{DS} = -15V, I _D = -1A, V _{GS} = -10V, R _{GS} = 2.7Ω | | 15 | |
| Rise Time ^{1,2} | t _r | | | 12 | | |
| Turn-Off Delay Time ^{1,2} | t _{d(off)} | | | 35 | | |
| Fall Time ^{1,2} | t _f | | | 10 | | |
| SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_C = 25 °C) | | | | | | |
| Continuous Current | I _S | | | | -21 | A |
| Pulsed Current ³ | I _{SM} | | | | -84 | |
| Forward Voltage ¹ | V _{SD} | I _F = -13 A, V _{GS} = 0V | | | -1.2 | V |
| Reverse Recovery Time | t _{rr} | I _F = I _S , dI _F /dt = 100A / μS | | 32 | | nS |
| Reverse Recovery Charge | Q _{rr} | | | 26 | | nC |

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

²Independent of operating temperature.



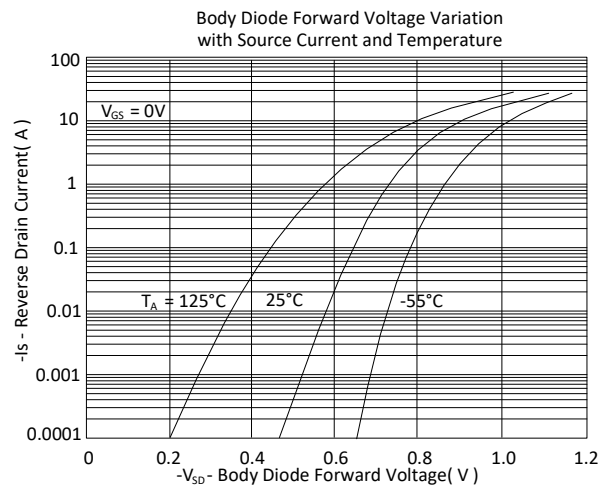
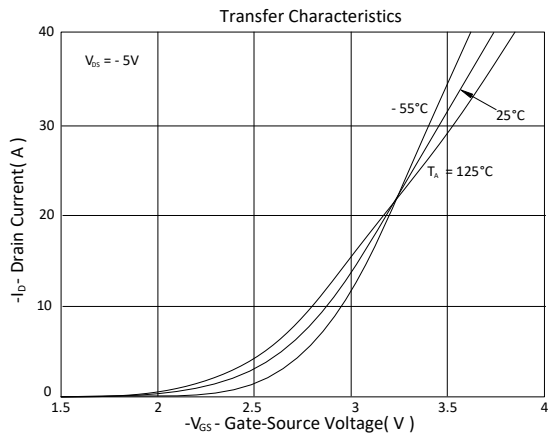
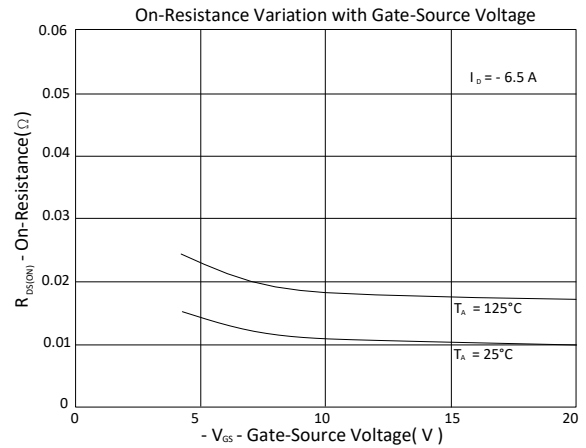
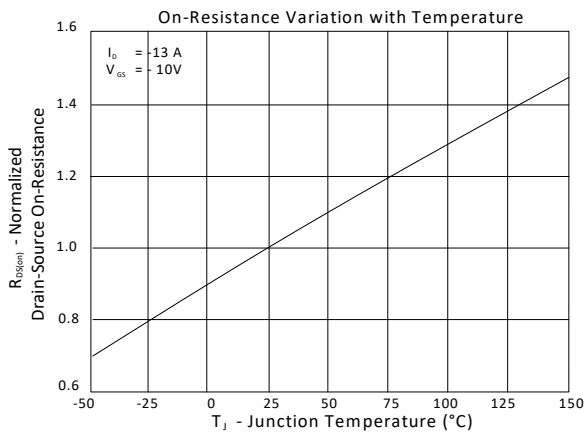
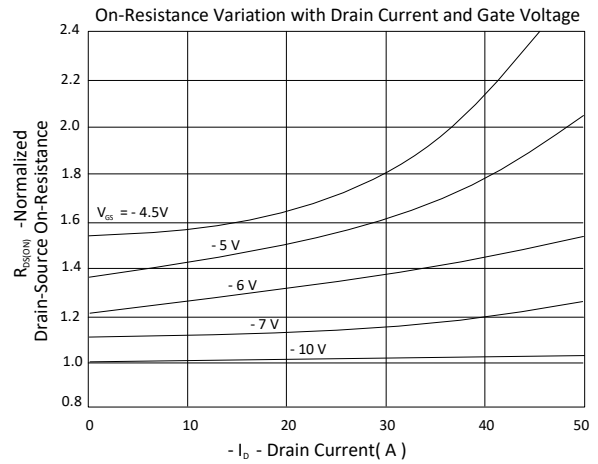
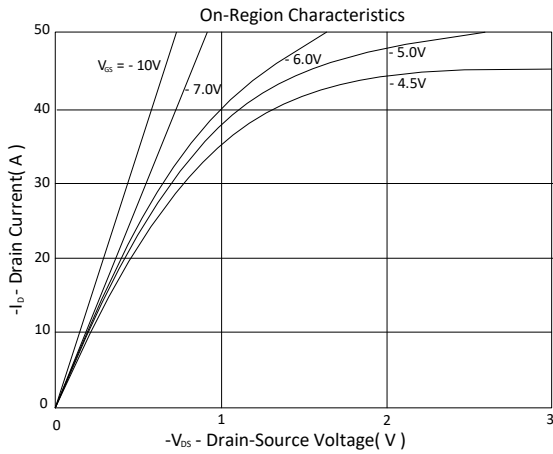
杰力科技股份有限公司
Excelliance MOS Corporation

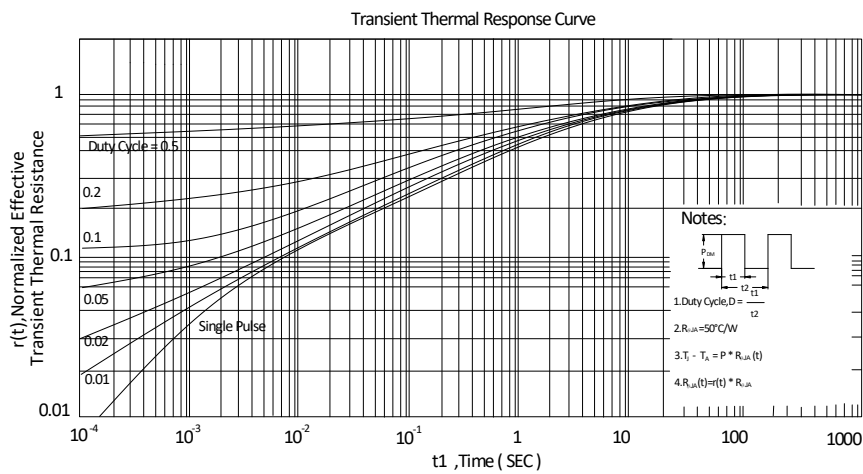
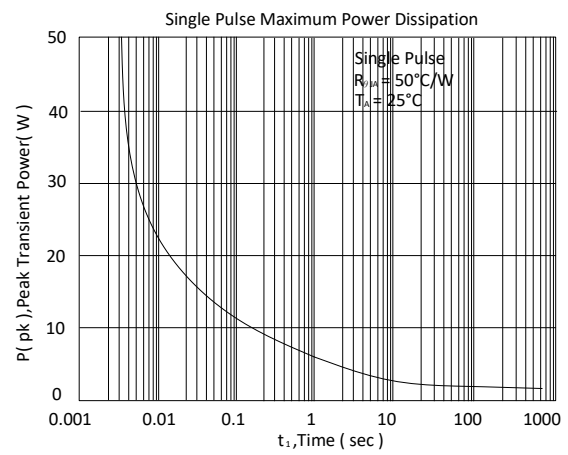
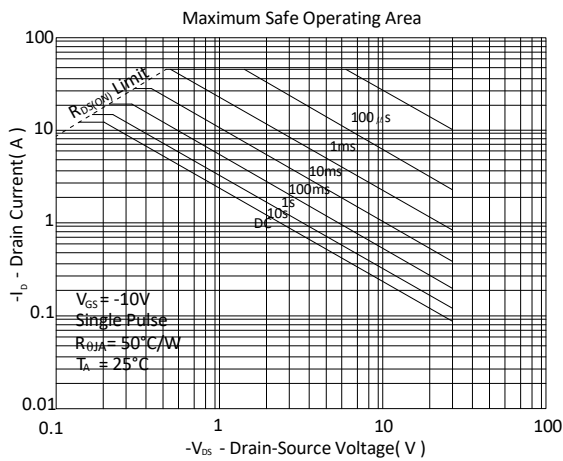
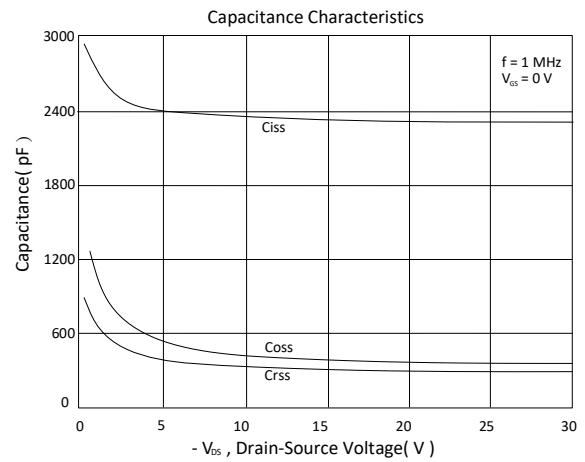
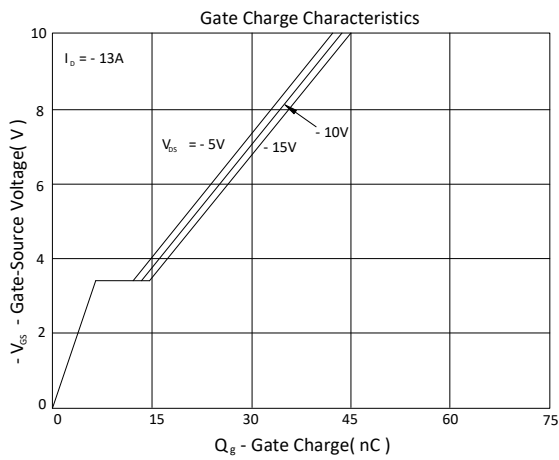
EMB12P03V

³Pulse width limited by maximum junction temperature.

EMC will review datasheet by quarter, and update new version.

TYPICAL CHARACTERISTICS





Ordering & Marking Information:

Device Name: EMB12P03V for EDFN 3 x 3



→ B12P03: Device Name

→ ABCDEFG: Date Code

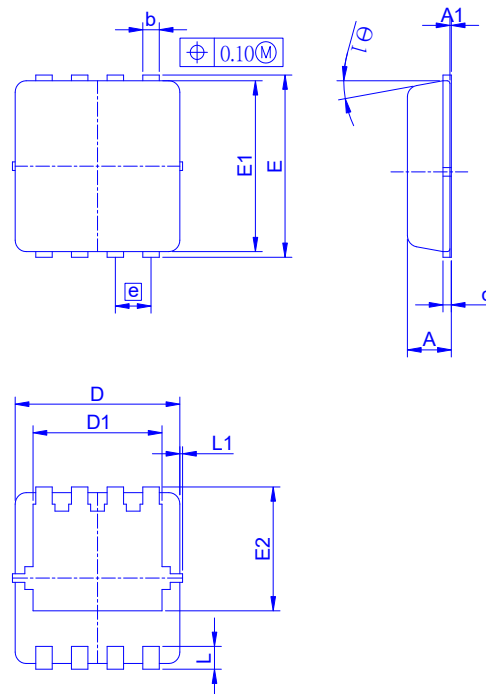
A: Assembly House

B: Year(A:2008 B:2009 C:2010....)

C: Month(A:01 B:02 C:03 D:04 E:05 F:06 G:07 H:08 I:09 J:10 K:11 L:12)

DEFG: Serial No.

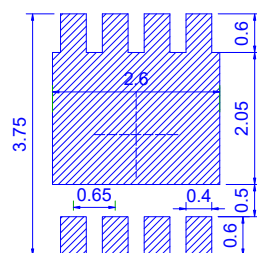
Outline Drawing



Dimension in mm

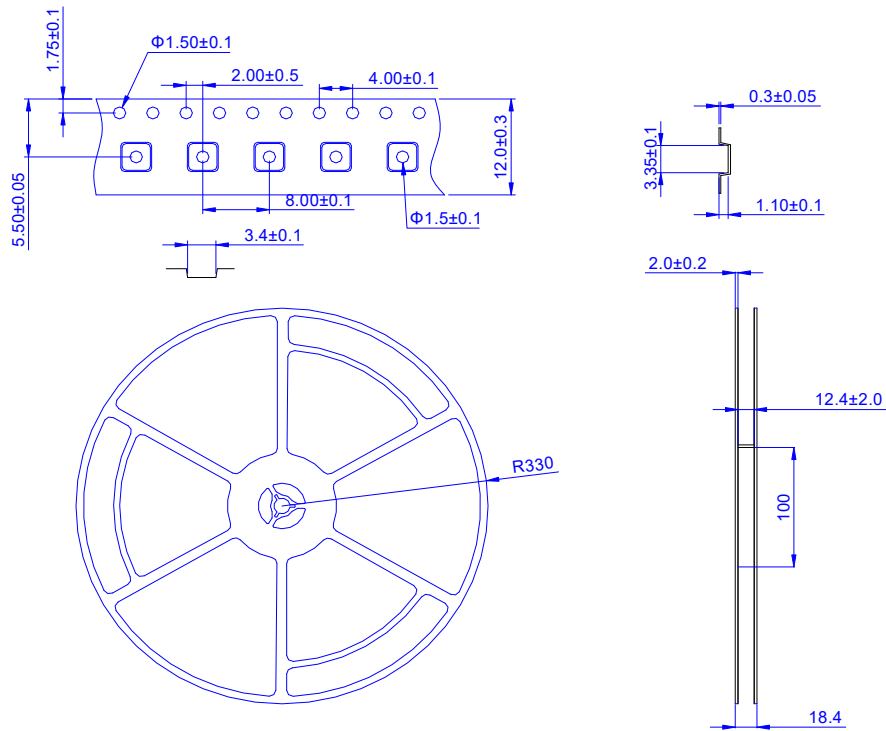
| Dimension | A | A1 | b | c | D | D1 | E | E1 | E2 | e | L | L1 | θ 1 |
|-----------|------|------|------|------|------|------|------|------|------|------|------|-------|------------|
| Min. | 0.65 | 0 | 0.20 | 0.10 | 2.90 | 2.15 | 3.10 | 2.90 | 1.53 | 0.55 | 0.25 | - | 0° |
| Typ. | 0.75 | - | 0.30 | 0.15 | 3.00 | 2.45 | 3.20 | 3.00 | 1.97 | 0.65 | 0.40 | 0.075 | 10° |
| Max. | 0.90 | 0.05 | 0.40 | 0.25 | 3.30 | 2.74 | 3.50 | 3.30 | 2.59 | 0.75 | 0.60 | 0.150 | 14° |

Recommended minimum pads





Tape&Reel Information: 5000pcs/Reel



| | |
|---------|------------------------|
| 產品別 | EDFN3X3 |
| Reel 尺寸 | 13" |
| 編帶方式 | <p>FEEED DIRECTION</p> |
| 前空格 | 50 |
| 後空格 | 50 |
| 裝箱數 | |
| 滿捲數量 | 5K |
| 捲/內盒比 | 1 : 1 |
| 內盒滿箱數 | 5K |
| 內/外箱比 | 10 : 1 |
| 外箱滿箱數 | 50K |