

P-Channel Logic Level Enhancement Mode Field Effect Transistor

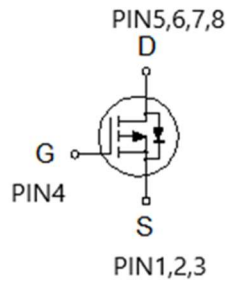
Product Summary:

BV _{DSS}	-30V
R _{DS(on)} (MAX.)	9.5mΩ
I _D	-24A

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	-24	A
	T _A = 25 °C		-13	
	T _C = 100 °C		-18	
Pulsed Drain Current ¹		I _{DM}	-96	
Avalanche Current		I _{AS}	-25	
Avalanche Energy	L = 0.1mH, I _{AS} = -25A, R _G = 25Ω	E _{AS}	31.25	mJ
Repetitive Avalanche Energy ²	L = 0.05mH	E _{AR}	15.62	
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

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	-24			A
Drain-Source On-State Resistance ¹	R _{DS(ON)}	V _{GS} = -10V, I _D = -13A		8.5	9.5	mΩ
		V _{GS} = -4.5V, I _D = -9A		14	18	
Forward Transconductance ¹	g _{fs}	V _{DS} = -5V, I _D = -13A		24		S
DYNAMIC						
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = -15V, f = 1MHz		3067		pF
Output Capacitance	C _{oss}			453		
Reverse Transfer Capacitance	C _{rss}			398		
Gate Resistance	R _g	V _{GS} = 15mV, V _{DS} = 0V, f = 1MHz		3.0		Ω
Total Gate Charge ^{1,2}	Q _g (V _{GS} =-10V)	V _{DS} = -15V, V _{GS} = -10V, I _D = -13A		52		nC
	Q _g (V _{GS} =-4.5V)			20		
Gate-Source Charge ^{1,2}	Q _{gs}			6.5		
Gate-Drain Charge ^{1,2}	Q _{gd}			10		
Turn-On Delay Time ^{1,2}	t _{d(on)}		V _{DS} = -15V, I _D = -1A, V _{GS} = -10V, R _{GS} = 2.7Ω		20	
Rise Time ^{1,2}	t _r			18		
Turn-Off Delay Time ^{1,2}	t _{d(off)}			55		
Fall Time ^{1,2}	t _f			10		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_C = 25 °C)						
Continuous Current	I _S				-24	A
Pulsed Current ³	I _{SM}				-96	
Forward Voltage ¹	V _{SD}	I _F = -13A, V _{GS} = 0V			-1.2	V
Reverse Recovery Time	t _{rr}	I _F = I _S , dI _F /dt = 100A / μS		47		nS
Reverse Recovery Charge	Q _{rr}			43		nC

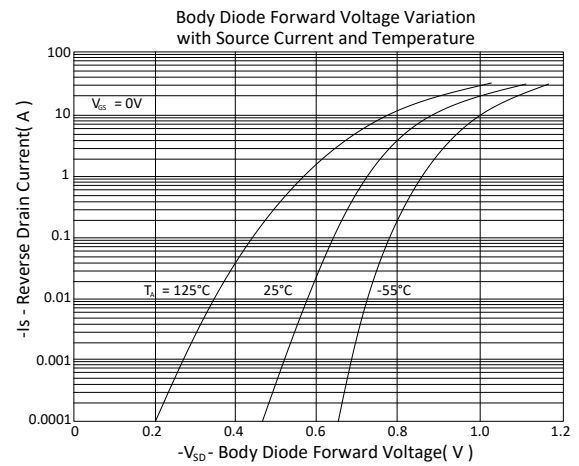
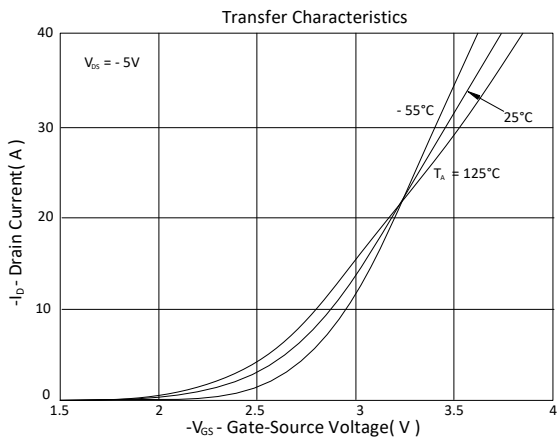
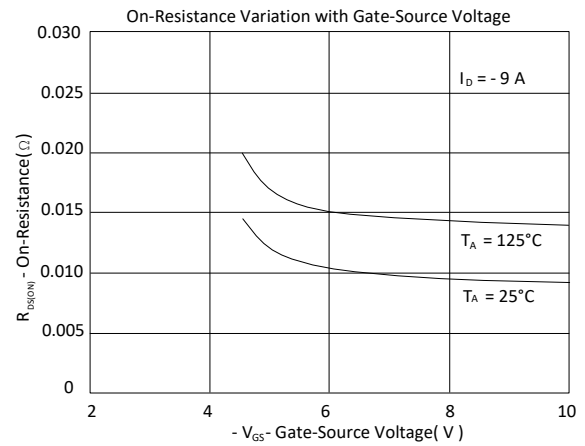
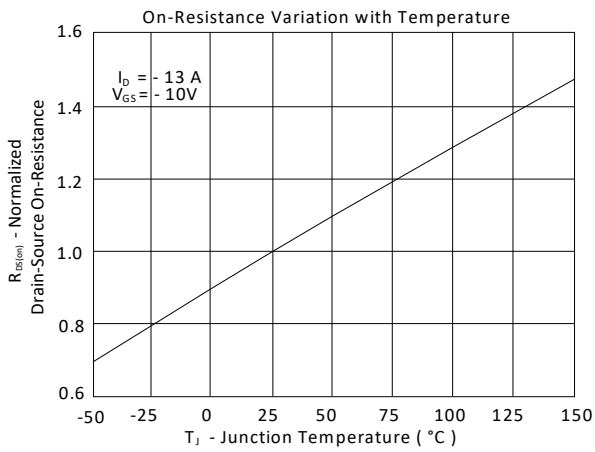
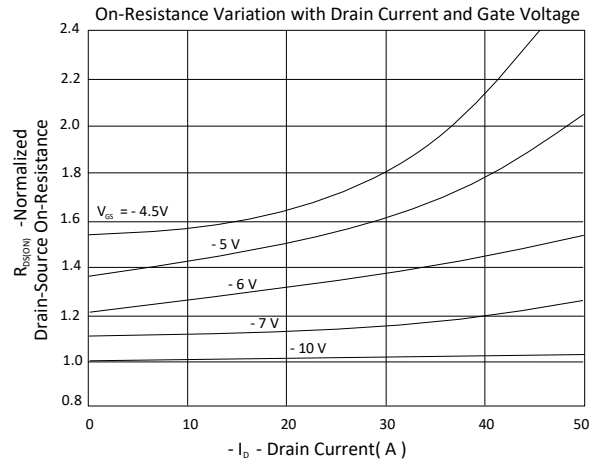
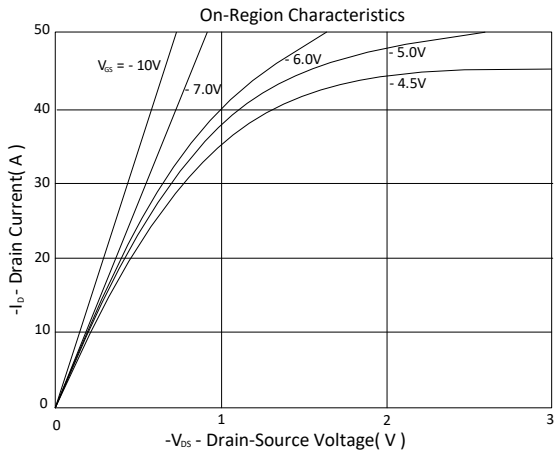
¹Pulse test : Pulse Width $\leq 300 \mu\text{sec}$, Duty Cycle $\leq 2\%$.

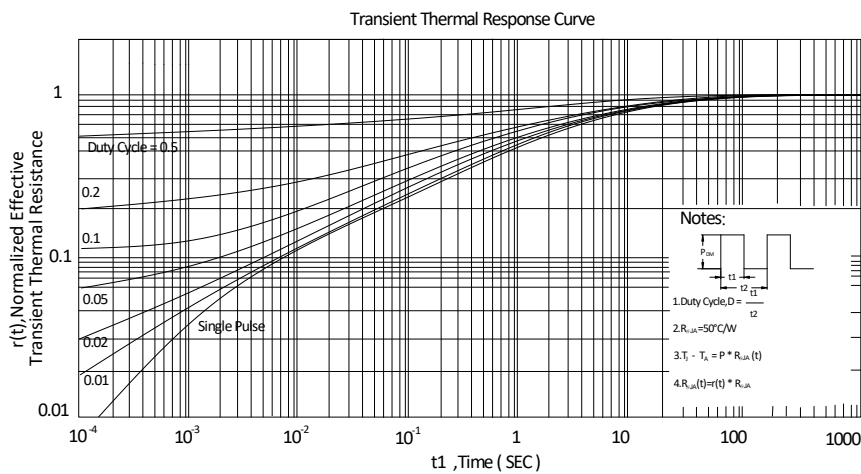
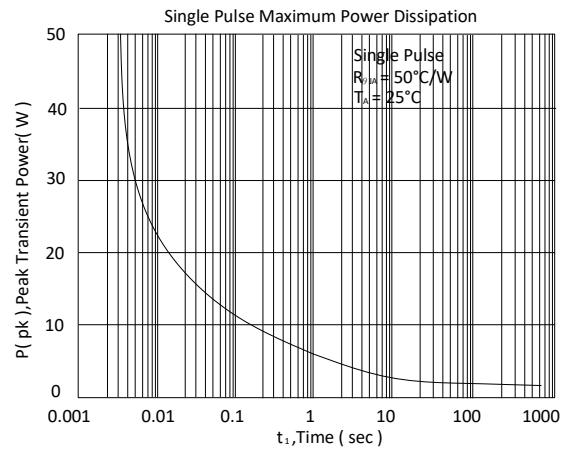
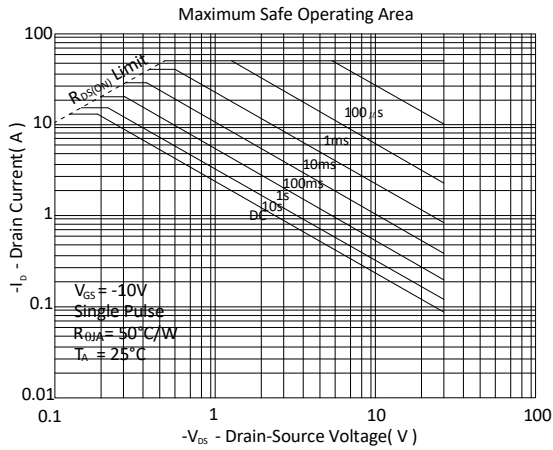
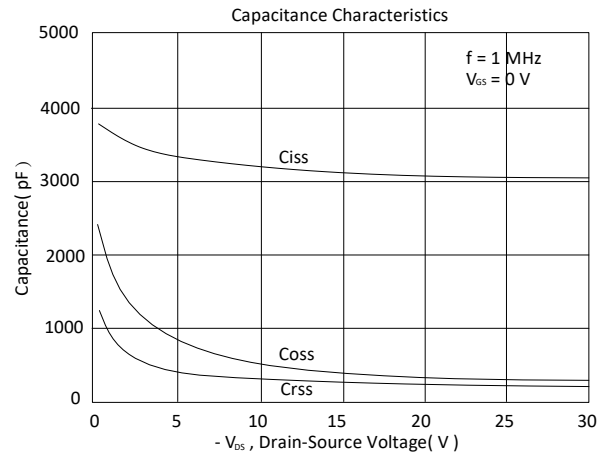
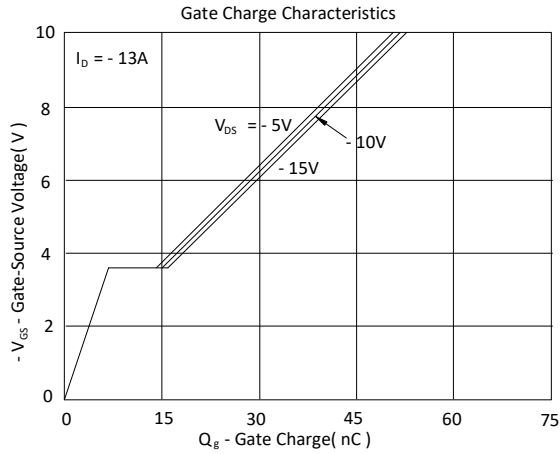
²Independent of operating temperature.

³Pulse width limited by maximum junction temperature.

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

TYPICAL CHARACTERISTICS





Ordering & Marking Information:

Device Name: EMB09P03V for EDFN3X3



B09P03: Device Name

ABCDEFG: Date Code

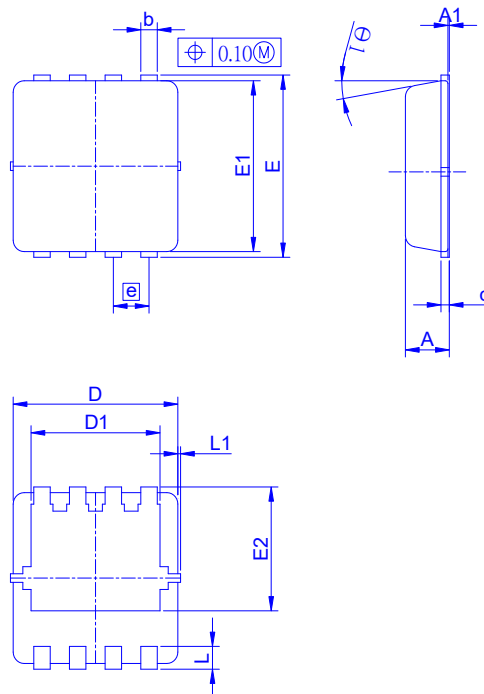
A: Assembly House

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.

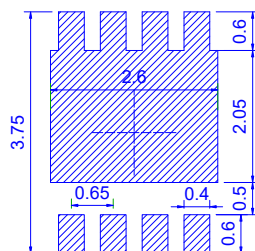
Outline Drawing



Dimension in mm

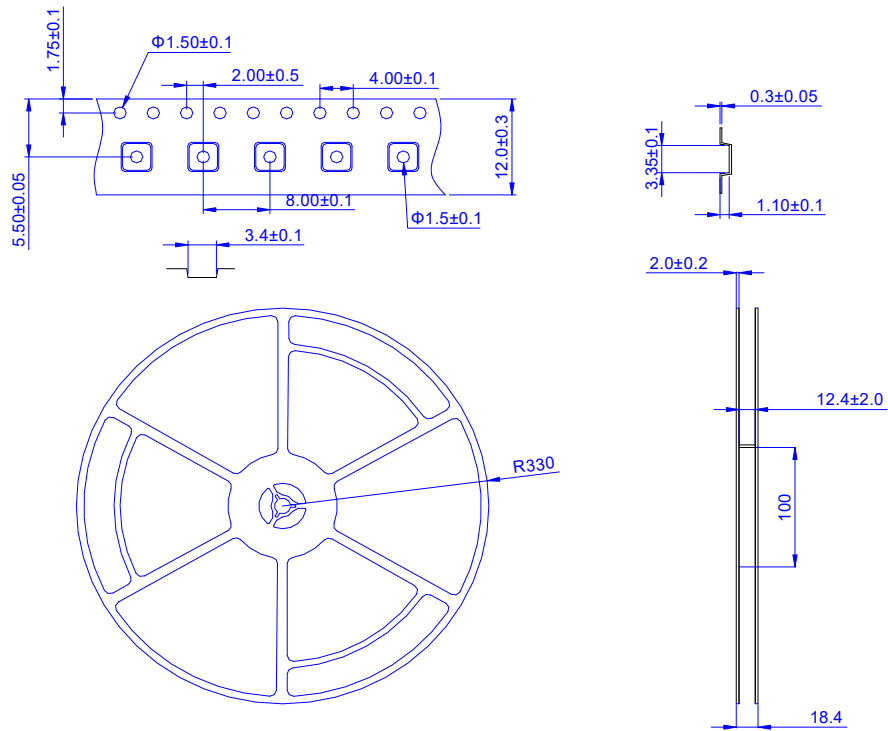
Dimension	A	A1	b	c	D	D1	E	E1	E2	e	L	L1	θ
Min.	0.65	0	0.20	0.10	2.90	2.15	3.10	2.90	1.53	0.55	0.25	-	0°
Typ.	0.75	-	0.30	0.15	3.00	2.45	3.20	3.00	1.97	0.65	0.40	0.075	10°
Max.	0.90	0.05	0.40	0.25	3.30	2.74	3.50	3.30	2.59	0.75	0.60	0.150	14°

Recommended minimum pads





Tape&Reel Information: 5000pcs/Reel



產品別	EDFN3X3
Reel 尺寸	13"
編帶方式	<p>FEED 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