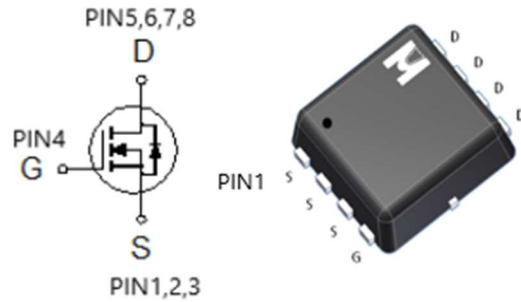


N-Channel Logic Level Enhancement Mode Field Effect Transistor

Product Summary:

$BV_{DSS}$	30V
$R_{DS(on)}$ (MAX.)	7m $\Omega$
$I_D$	24A



N Channel MOSFET

UIS, R<sub>g</sub> 100% Tested

Pb-Free Lead Plating & Halogen Free



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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNIT
Gate-Source Voltage		$V_{GS}$	$\pm 20$	V
Continuous Drain Current	$T_c = 25^\circ\text{C}$	$I_D$	24	A
	$T_A = 25^\circ\text{C}$		15	
	$T_c = 100^\circ\text{C}$		17	
Pulsed Drain Current <sup>1</sup>		$I_{DM}$	96	
Avalanche Current		$I_{AS}$	15	
Avalanche Energy	$L = 0.1\text{mH}$ , $I_{AS} = 15\text{A}$ , $R_G = 25\Omega$	$E_{AS}$	11.25	mJ
Repetitive Avalanche Energy <sup>2</sup>	$L = 0.05\text{mH}$	$E_{AR}$	5.62	
Power Dissipation	$T_c = 25^\circ\text{C}$	$P_D$	21	W
	$T_c = 100^\circ\text{C}$		8.3	
Power Dissipation	$T_A = 25^\circ\text{C}$	$P_D$	2.5	W
	$T_A = 100^\circ\text{C}$		1	
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-Case	$R_{\theta JC}$		6	$^\circ\text{C} / \text{W}$
Junction-to-Ambient <sup>3</sup>	$R_{\theta JA}$		50	

<sup>1</sup>Pulse width limited by maximum junction temperature.

<sup>2</sup>Duty cycle  $\leq 1\%$

<sup>3</sup>50 $^\circ\text{C} / \text{W}$  when mounted on a 1 in<sup>2</sup> pad of 2 oz copper.

ELECTRICAL CHARACTERISTICS ( $T_j = 25^\circ\text{C}$ , Unless Otherwise Noted)



PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
<b>STATIC</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	30			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1	1.5	3	
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0V, V_{GS} = \pm 20V$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 24V, V_{GS} = 0V$			1	$\mu A$
		$V_{DS} = 20V, V_{GS} = 0V, T_J = 125^\circ C$			25	
On-State Drain Current <sup>1</sup>	$I_{D(ON)}$	$V_{DS} = 10V, V_{GS} = 10V$	24			A
Drain-Source On-State Resistance <sup>1</sup>	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 14A$		5.5	7	$m\Omega$
		$V_{GS} = 4.5V, I_D = 10A$		6.5	9	
Forward Transconductance <sup>1</sup>	$g_{fs}$	$V_{DS} = 5V, I_D = 14A$		25		S
<b>DYNAMIC</b>						
Input Capacitance	$C_{iss}$	$V_{GS} = 0V, V_{DS} = 15V, f = 1MHz$		1019		$pF$
Output Capacitance	$C_{oss}$			163.8		
Reverse Transfer Capacitance	$C_{rss}$			93.5		
Gate Resistance	$R_g$	$V_{GS} = 15mV, V_{DS} = 0V, f = 1MHz$		2.5		$\Omega$
Total Gate Charge <sup>1,2</sup>	$Q_g(V_{GS}=10V)$	$V_{DS} = 15V, V_{GS} = 10V, I_D = 14A$		15.07		nC
	$Q_g(V_{GS}=4.5V)$			8.54		
Gate-Source Charge <sup>1,2</sup>	$Q_{gs}$			3.32		
Gate-Drain Charge <sup>1,2</sup>	$Q_{gd}$			3.52		
Turn-On Delay Time <sup>1,2</sup>	$t_{d(on)}$		$V_{DS} = 15V, I_D = 1A, V_{GS} = 10V, R_{GS} = 6\Omega$		10	
Rise Time <sup>1,2</sup>	$t_r$			10		
Turn-Off Delay Time <sup>1,2</sup>	$t_{d(off)}$			20		
Fall Time <sup>1,2</sup>	$t_f$			15		
<b>SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (<math>T_c = 25^\circ C</math>)</b>						
Continuous Current	$I_S$				24	A
Pulsed Current <sup>3</sup>	$I_{SM}$				96	
Forward Voltage <sup>1</sup>	$V_{SD}$	$I_F = 14A, V_{GS} = 0V$			1.2	V
Reverse Recovery Time	$t_{rr}$	$I_F = I_S, di_F/dt = 100A / \mu S$		20		nS
Peak Reverse Recovery Current	$I_{RM(REC)}$			40		A
Reverse Recovery Charge	$Q_{rr}$			11		nC

<sup>1</sup>Pulse test : Pulse Width  $\leq 300 \mu sec$ , Duty Cycle  $\leq 2\%$ .

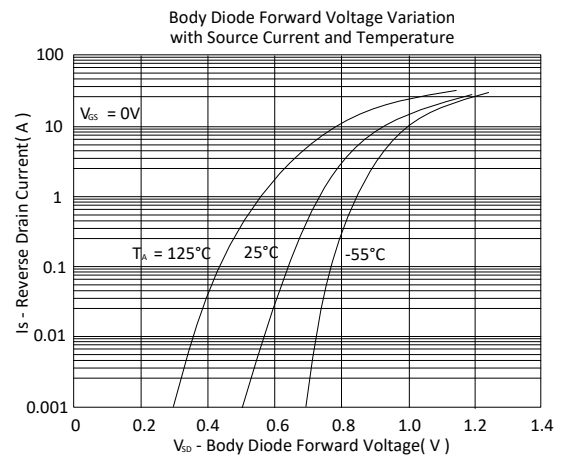
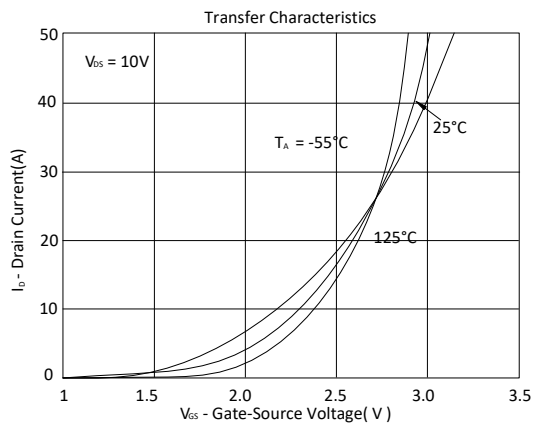
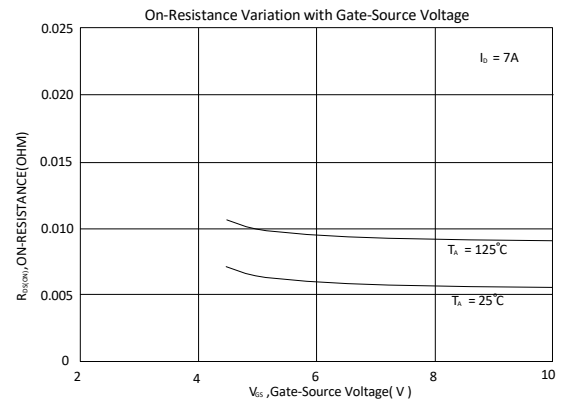
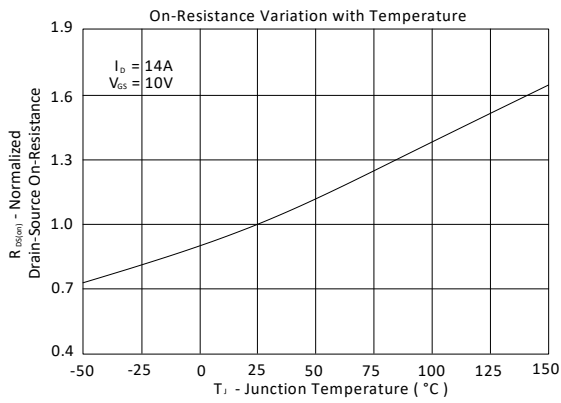
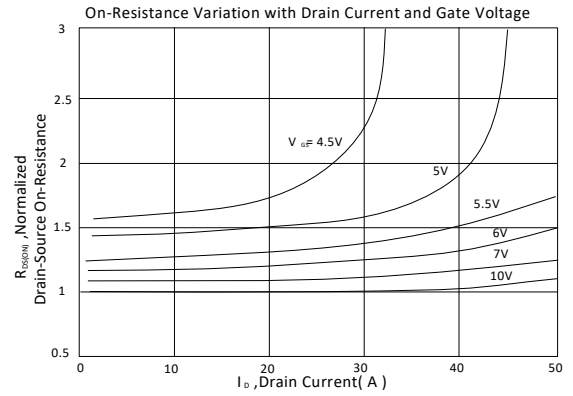
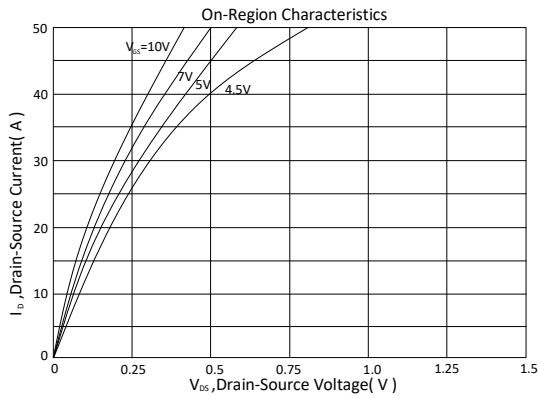
<sup>2</sup>Independent of operating temperature.

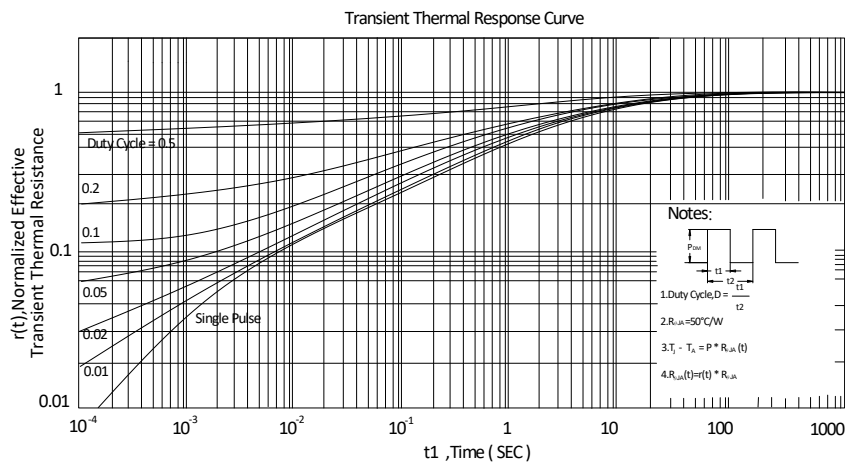
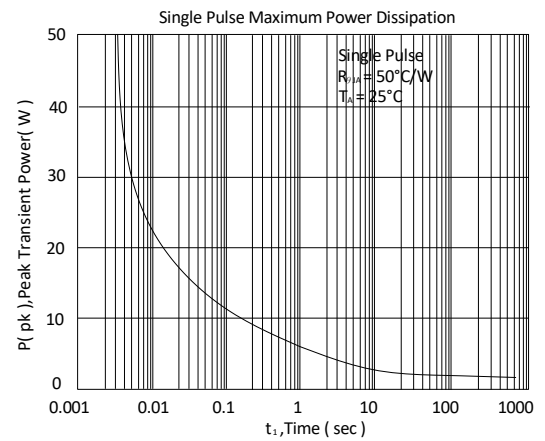
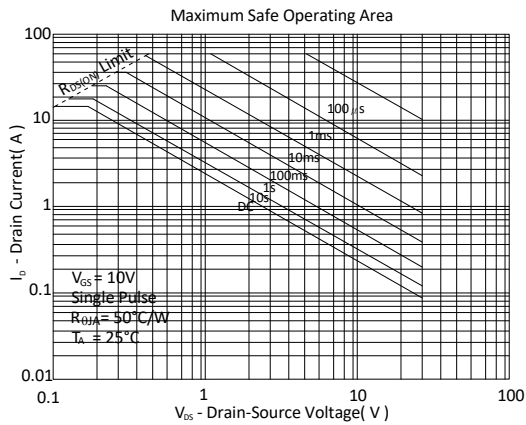
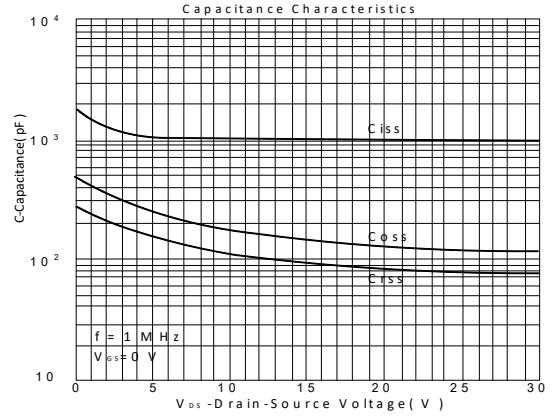
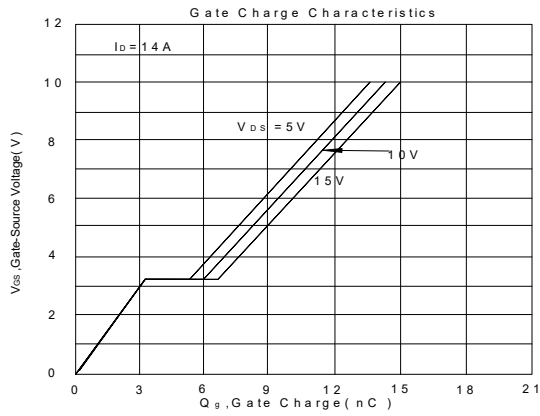
<sup>3</sup>Pulse width limited by maximum junction temperature.

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



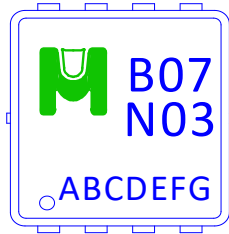
TYPICAL CHARACTERISTICS





Ordering & Marking Information:

Device Name: EMB07N03VL for EDFN 3X3



B07N03: Device Name

ABCDEFGH: Date Code

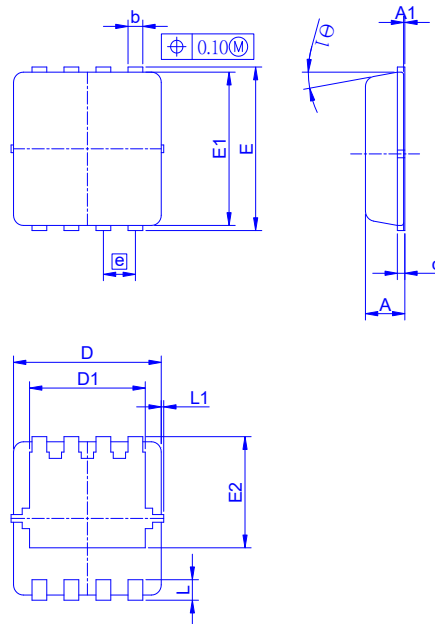
A: Assembly House

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.

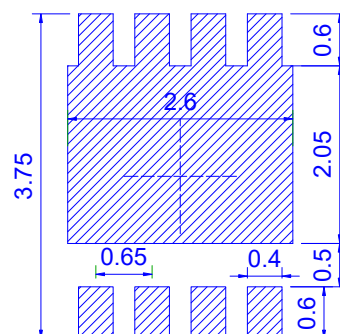
Outline Drawing



Dimension in mm

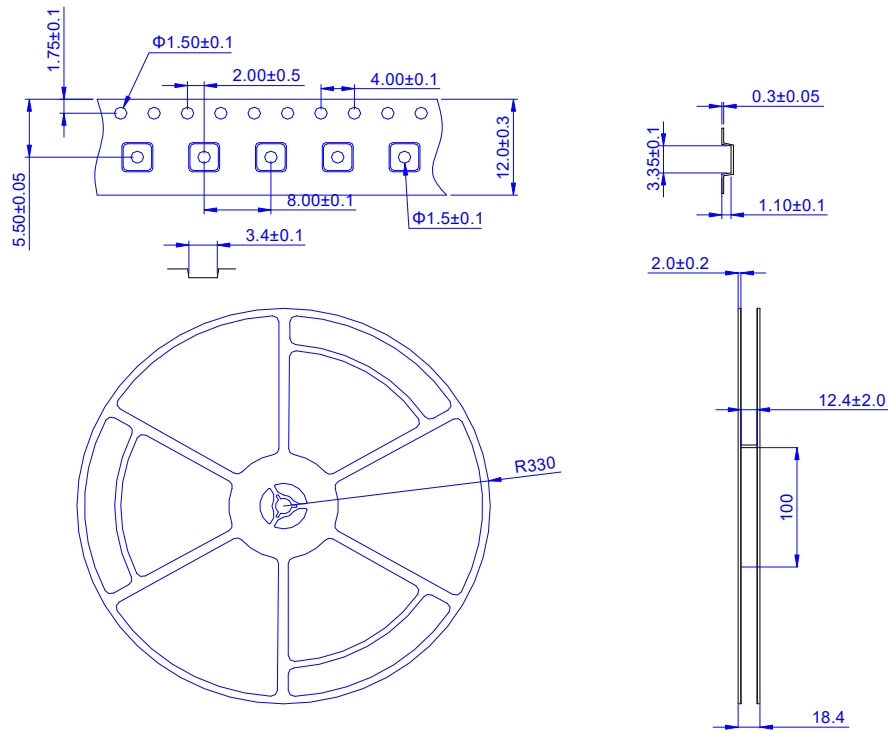
Dimension	A	A1	b	c	D	D1	E	E1	E2	e	L	L1	$\theta$ 1
Min.	0.65	0	0.20	0.10	2.90	2.15	3.10	2.90	1.53	0.55	0.25	-	0°
Typ.	0.75	-	0.30	0.15	3.00	2.45	3.20	3.00	1.97	0.65	0.40	0.075	10°
Max.	0.90	0.05	0.40	0.25	3.30	2.74	3.50	3.30	2.59	0.75	0.60	0.150	14°

Recommended minimum pads





Tape&Reel Information: 5000pcs/Reel



產品別	EDFN3X3
Reel 尺寸	13"
編帶方式	<p>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