



N-Channel Logic Level Enhancement Mode Field Effect Transistor

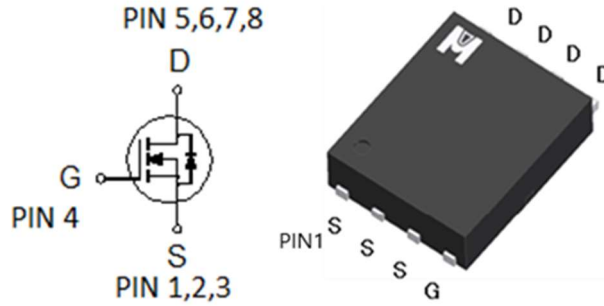
Product Summary:

BV _{DSS}	30V
R _{DS(on)} (MAX.)	2.1mΩ
I _D	123A

N 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}	±20	V
Continuous Drain Current ¹	T _C = 25 °C	I _D	123	A
	T _A = 25 °C (t ≤ 10s)		43	
	T _A = 25 °C (Steady-State)		27	
	T _C = 100 °C		78	
Pulsed Drain Current ²		I _{DM}	400	
Avalanche Current		I _{AS}	65	
Avalanche Energy	L = 0.1mH, I _{AS} =65A, R _G =25Ω	E _{AS}	211	mJ
Repetitive Avalanche Energy ³	L = 0.05mH	E _{AR}	105	
Power Dissipation	T _C = 25 °C	P _D	50	W
	T _C = 100 °C		20	
Operating Junction & Storage Temperature Range		T _J , T _{stg}	-55 to 150	°C

100% UIS testing in condition of V_D=15V, L=0.1mH, V_G=10V, I_L=40A, Rated V_{DS}=30V N-CH

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE		SYMBOL	TYPICAL	MAXIMUM	UNIT
Junction-to-Case		R _{θJC}		2.5	°C / W
Junction-to-Ambient ³	t ≤ 10s	R _{θJA}		20	
Junction-to-Ambient ³	Steady-State	R _{θJA}		50	

¹Package Limited.

²Pulse width limited by maximum junction temperature.

³Duty cycle ≤ 1%



⁴50°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
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			25	
On-State Drain Current ¹	I _{D(ON)}	V _{DS} = 10V, V _{GS} = 10V	123			A
Drain-Source On-State Resistance ¹	R _{DS(ON)}	V _{GS} = 10V, I _D = 25A		1.8	2.1	mΩ
		V _{GS} = 4.5V, I _D = 15A		2.7	3.3	
Forward Transconductance ¹	g _{fs}	V _{DS} = 5V, I _D = 25A		70		S
DYNAMIC						
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = 15V, f = 1MHz		3813		pF
Output Capacitance	C _{oss}			540		
Reverse Transfer Capacitance	C _{rss}			440		
Gate Resistance	R _g	V _{GS} = 15mV, V _{DS} = 0V, f = 1MHz		1.5		Ω
Total Gate Charge ^{1,2}	Q _g (V _{GS} =10V)	V _{DS} = 15V, V _{GS} = 10V, I _D = 25A		59		nC
	Q _g (V _{GS} =4.5V)			28		
Gate-Source Charge ^{1,2}	Q _{gs}			13		
Gate-Drain Charge ^{1,2}	Q _{gd}			11		
Turn-On Delay Time ^{1,2}	t _{d(on)}		V _{DS} = 15V, I _D = 1A, V _{GS} = 10V, R _{GS} = 2.7Ω		25	
Rise Time ^{1,2}	t _r			16		
Turn-Off Delay Time ^{1,2}	t _{d(off)}			60		
Fall Time ^{1,2}	t _f			25		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_C = 25 °C)						
Continuous Current ⁴	I _S				123	A
Pulsed Current ³	I _{SM}				400	
Forward Voltage ¹	V _{SD}	I _F = 30A, V _{GS} = 0V			1.2	V
Reverse Recovery Time	t _{rr}	I _F = I _S , dI _F /dt = 100A / μS		35		nS
Peak Reverse Recovery Current	I _{RM(REC)}			200		A
Reverse Recovery Charge	Q _{rr}			25		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

EMP21N03HC

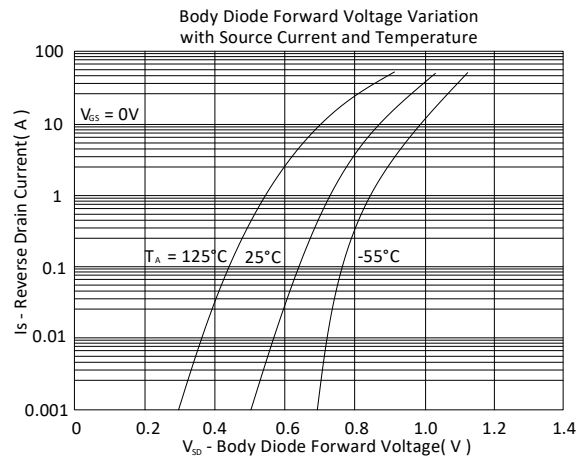
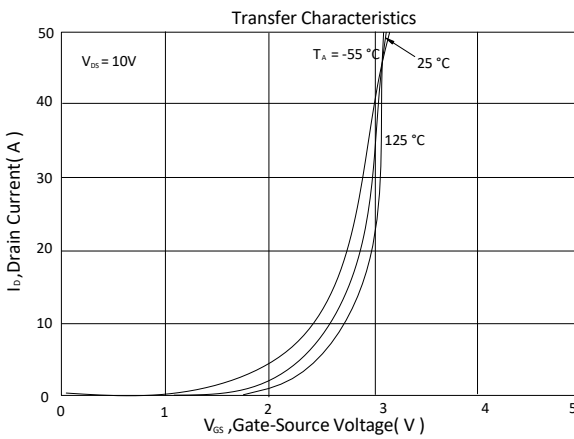
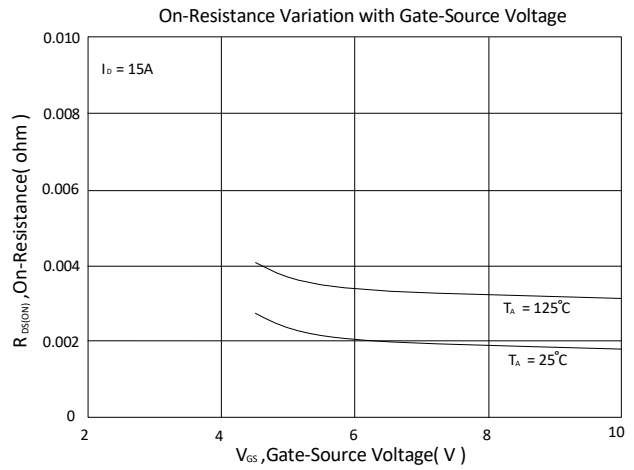
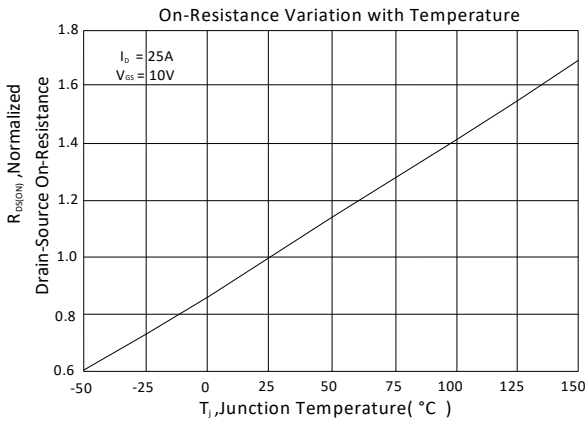
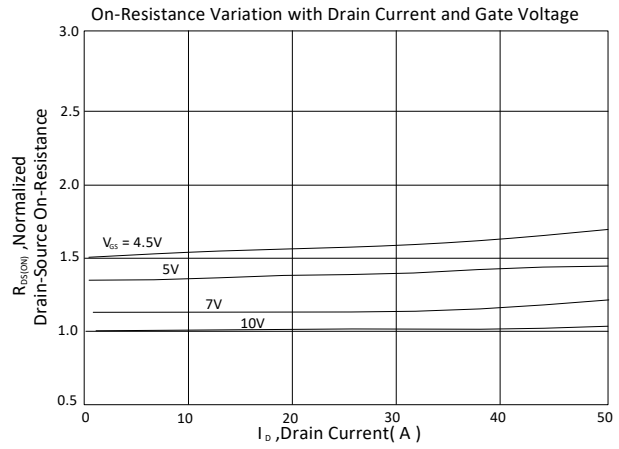
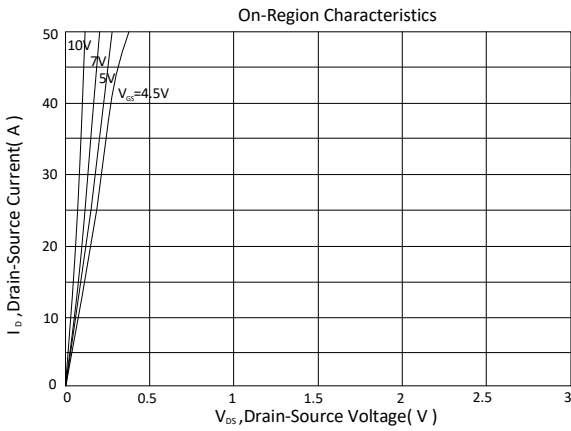
³Pulse width limited by maximum junction temperature.

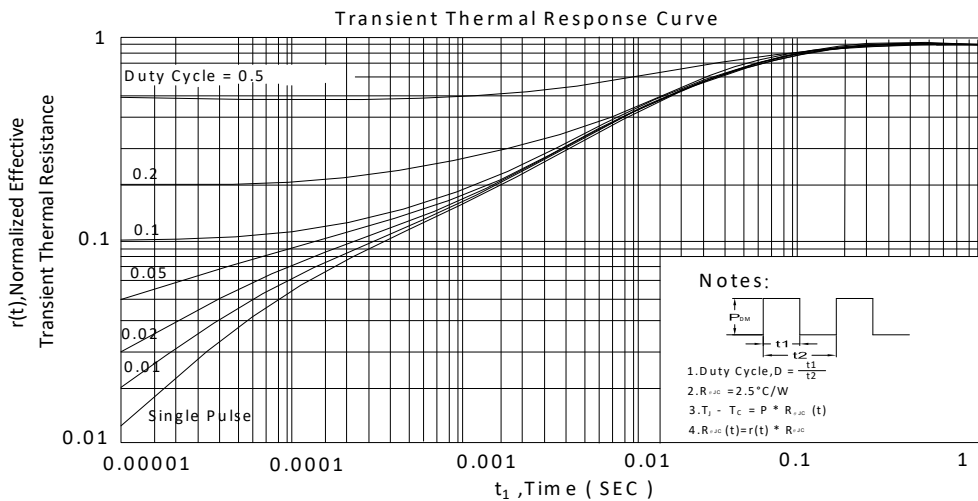
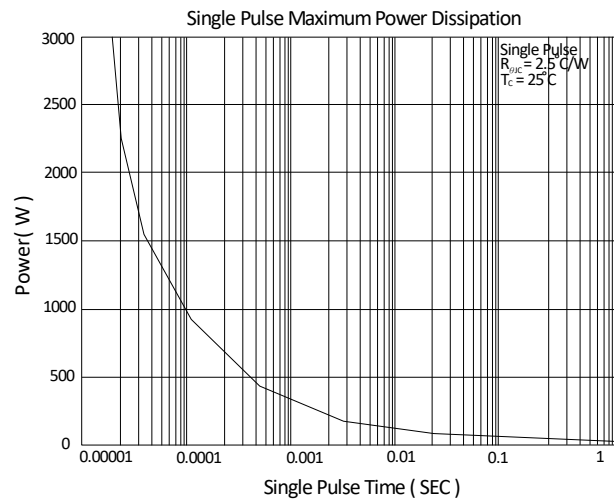
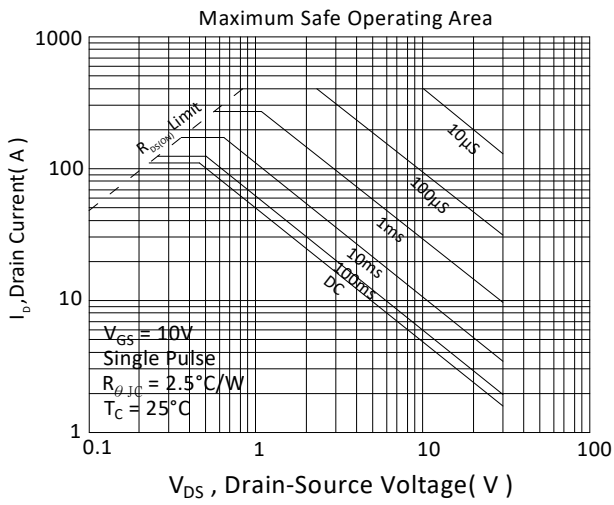
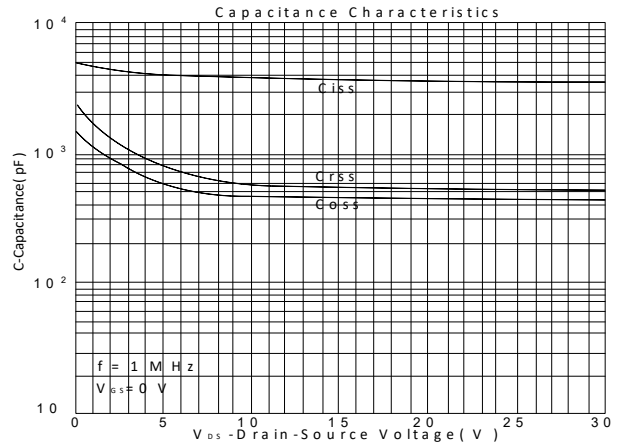
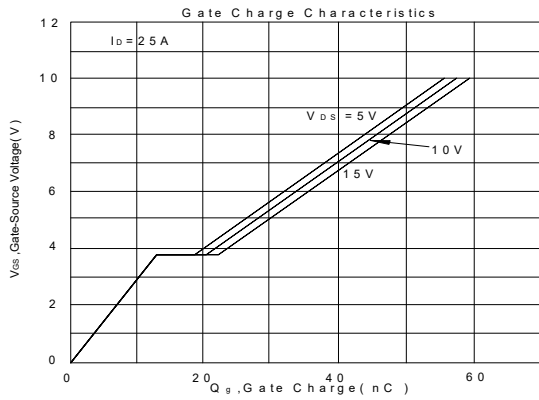
⁴Package Limited.

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



TYPICAL CHARACTERISTICS





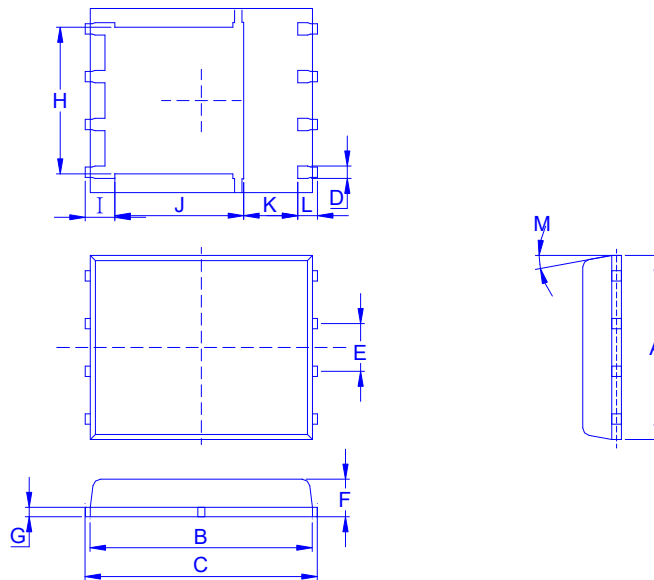
Ordering & Marking Information:

Device Name: EMP21N03HC for EDFN5X6



- EMP21N03HC: 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.

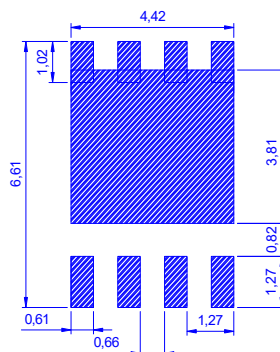
Outline Drawing



Dimension in mm

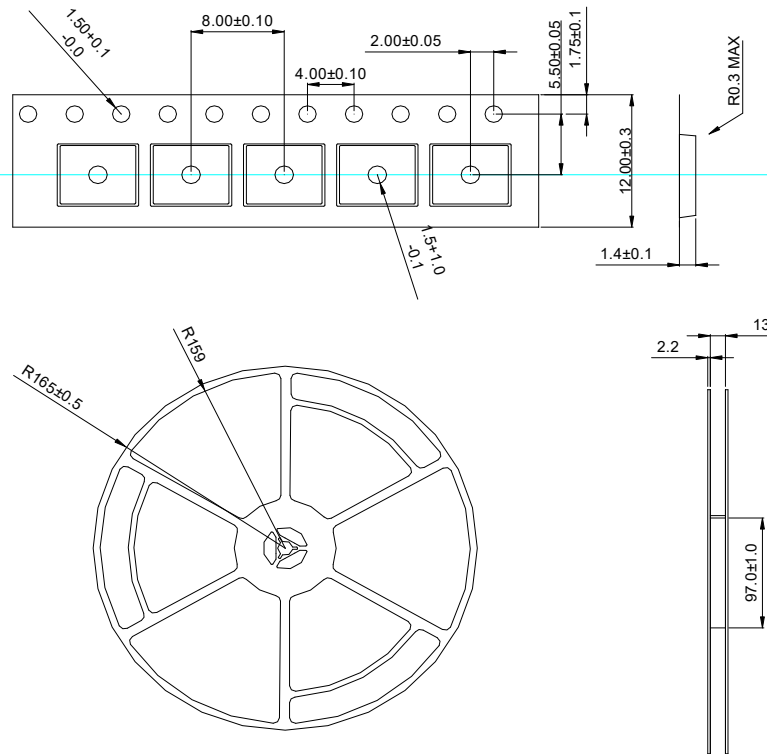
Dimension	A	B	C	D	E	F	G	H	I	J	K	L	M
Min	4.80	5.55	5.90	0.30	1.17	0.85	0.15	3.61	0.38	3.18	1.00	0.38	0°
Typ.	4.90	5.70	6.00	0.40	1.27	0.95	0.20	3.87	0.40	3.44	1.20	0.40	
Max	5.40	5.85	6.15	0.51	1.37	1.17	0.34	4.31	0.71	3.78	1.39	0.71	12°

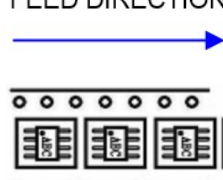
Recommended minimum pads





Tape&Reel Information:2500pcs/Reel(Dimension in millimeter)



產品別	EDFN5X6
Reel 尺寸	13"
編帶方式	FEED DIRECTION 
前空格	25
後空格	50
裝箱數	
滿捲數量	2.5K
捲/內盒比	1 : 1
內盒滿箱數	2.5K
內/外箱比	10 : 1
外箱滿箱數	25K