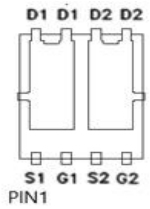
Dual N-Channel Logic Level Enhancement Mode Field Effect Transistor

▪Product Summary:

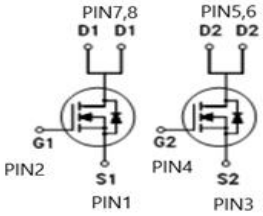
	N-CH
BVDSS	60V
$R_{DSON\ (MAX.)}$@V_{GS}=10V	120mΩ
$R_{DSON\ (MAX.)}$@V_{GS}=4.5V	180mΩ
I_D @T_C=25°C	11A

Dual N Channel MOSFET
UIS, Rg 100% Tested
Pb-Free Lead Plating & Halogen Free

▪ Pin Description:



EDFN5X6



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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNIT
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_C = 25 °C	I_D	11	A
	T_C = 100 °C		7.3	
Pulsed Drain Current[1]		I_{DM}	44	
Avalanche Current		I_{AS}	5	
Avalanche Energy	L = 0.1mH	EAS	1.25	mJ
Repetitive Avalanche Energy[2]	L = 0.05mH	EAR	0.63	
Power Dissipation	T_C = 25 °C	P_D	25	W
	T_C = 100 °C		10	
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	$R_{\theta JC}$		5	°C / W
Junction-to-Ambient[3]	$R_{\theta JA}$		62.5	

[1]Pulse width limited by maximum junction temperature.
[2]Duty cycle < 1%
[3]62.5°C / W when mounted on a 1 in^2 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 = 250uA	60			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250uA	1	1.7	2.5	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 48V, V_{GS} = 0V			1	uA
		V_{DS} = 48V, V_{GS} = 0V, T_J = 125 °C			25	
On-State Drain Current[1]	$I_{D(ON)}$	V_{DS} = 5V, V_{GS} = 10V	8			A
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = 10V, I_D = 5A		100	120	mΩ
		V_{GS} = 4.5V, I_D = 4A		150	180	
Forward Transconductance[1]	g_{fs}	V_{DS} = 5V, I_D = 5A		8		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 30V, f = 1MHz		112		pF
Output Capacitance	C_{oss}			57		
Reverse Transfer Capacitance	C_{rss}			13		
Gate Resistance	R_g	V_{GS} = 15mV, V_{DS} = 0V, f = 1MHz		3.5		Ω
Total Gate Charge[1,2]	Q_g(V_{GS}=10V)	V_{DS} = 30V, V_{GS} = 10V, I_D = 8A		3.2		nC
	Q_g(V_{GS}=4.5V)			2.1		
Gate-Source Charge[1,2]	Q_{gs}			0.5		
Gate-Drain Charge[1,2]	Q_{gd}			2.1		
Turn-On Delay Time[1,2]	$t_{d(on)}$	V_{DS} = 30V, V_{GS} = 10V, I_D = 1A , Rg = 6Ω		3.2		nS
Rise Time[1,2]	t_r			3		
Turn-Off Delay Time[1,2]	$t_{d(off)}$			7.2		
Fall Time[1,2]	t_f			18.4		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_C = 25 °C)						
Continuous Current	I_S				11	A
Pulsed Current[3]	I_{SM}				44	
Forward Voltage[1]	V_{SD}	I_F = I_S, V_{GS} = 0V			1.3	V
Reverse Recovery Time	t_{rr}	I_F = I_S=8A, dI_F/dt = 100A / mS		7.2		nS
Reverse Recovery Charge	Q_{rr}			0.26		nC

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

[2]Independent of operating temperature.

[3]Pulse width limited by maximum junction temperature.

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

▪ TYPICAL CHARACTERISTICS

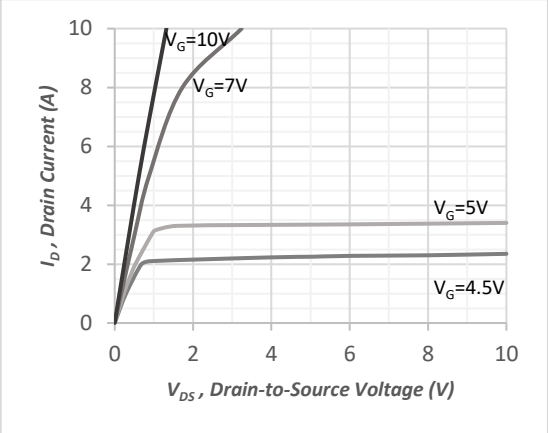


Fig.1 Typical Output Characteristics

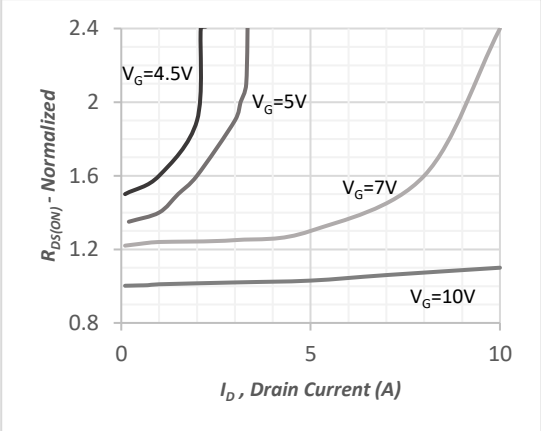


Fig.2 On-Resistance vs. Drain Current

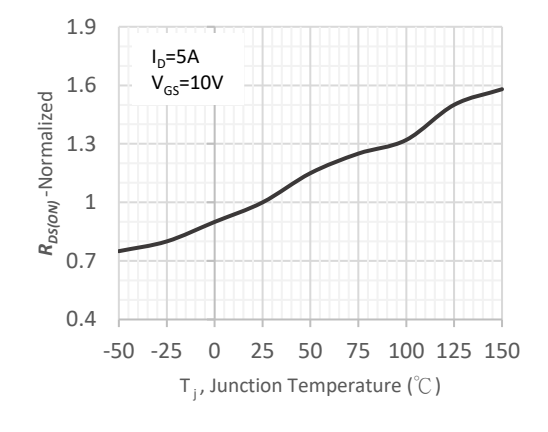


Fig.3 Normalized On-Resistance v.s. Junction Temperature

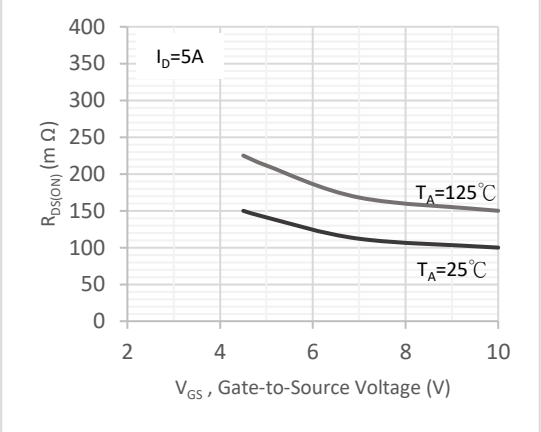


Fig.4 On-Resistance v.s. Gate Voltage

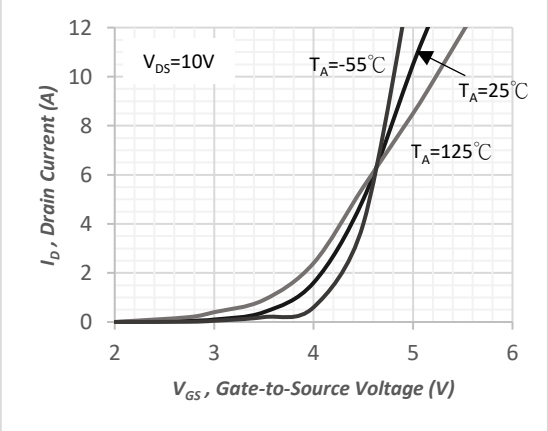


Fig.5 Forward Characteristic of Reverse Diode

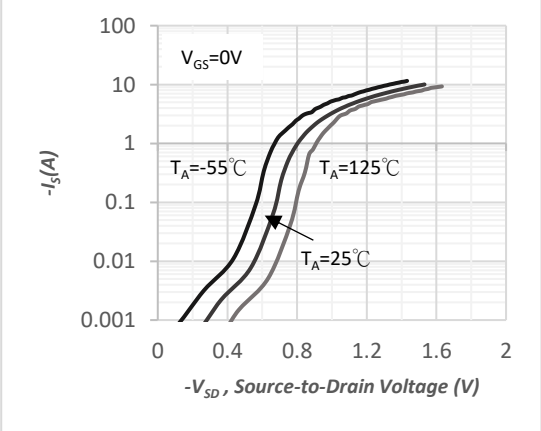


Fig.6 Transfer Characteristics

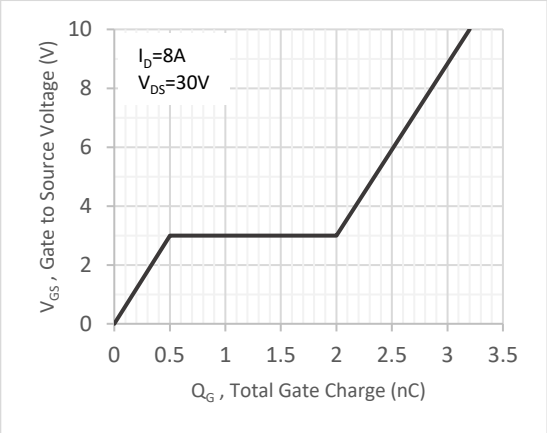


Fig.7 Gate Charge Characteristics

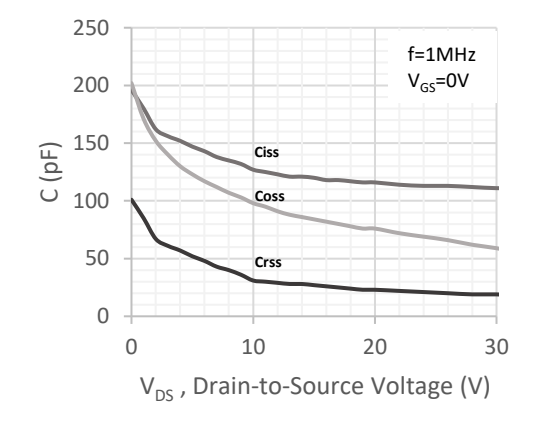


Fig.8 Typical Capacitance Characteristics

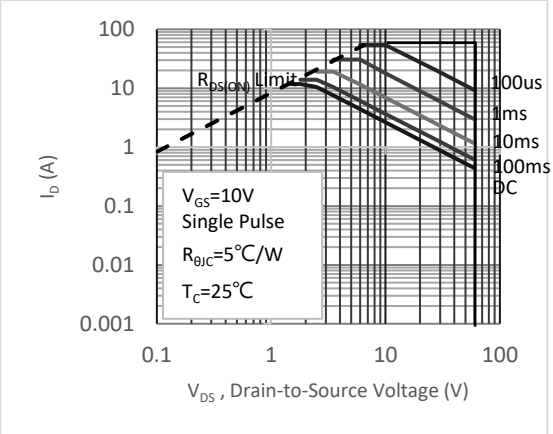


Fig 9. Maximum Safe Operating Area

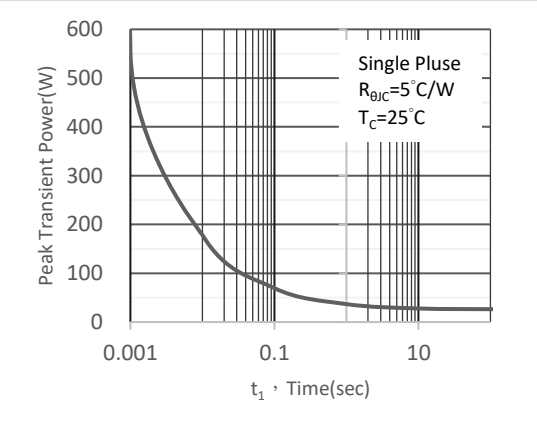


Fig 10. Single Pulse Maximum Power Dissipation

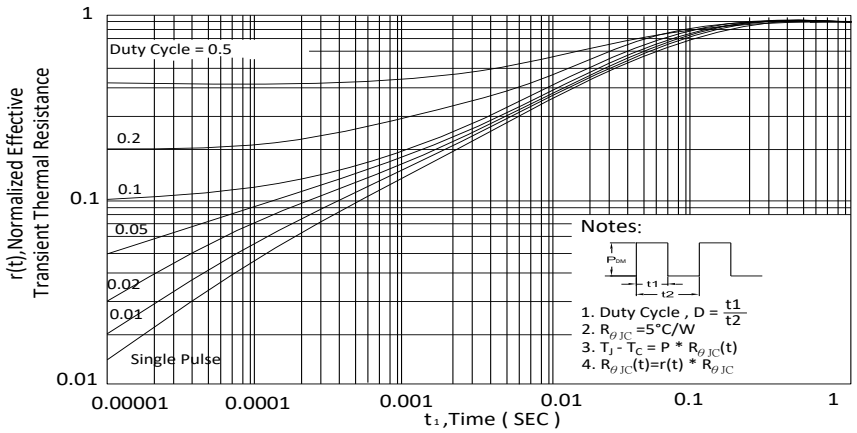


Fig 11. Effective Transient Thermal Impedance

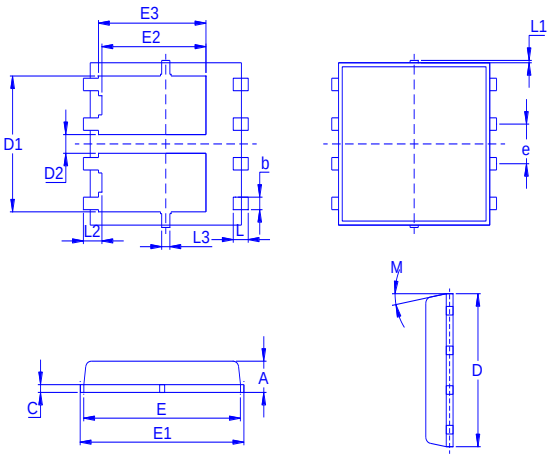
Ordering & Marking Information:

Device Name: EMBA2A06HS for EDFN 5x6

BA2A06S: Device Name

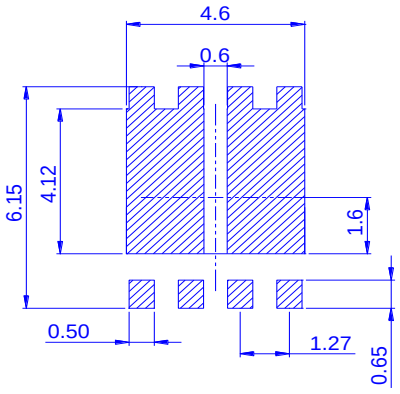
ABCDEFG: Date Code
A: Assembly House
B: Year(A:2008 B:2009 C:2010….)
C: Month(A:01 B:02 C:03 D:04 E:05 F:06 G:07 H:08 I:09 J:10 K:11 L:12)
DEFG: Serial No.

Outline Drawing

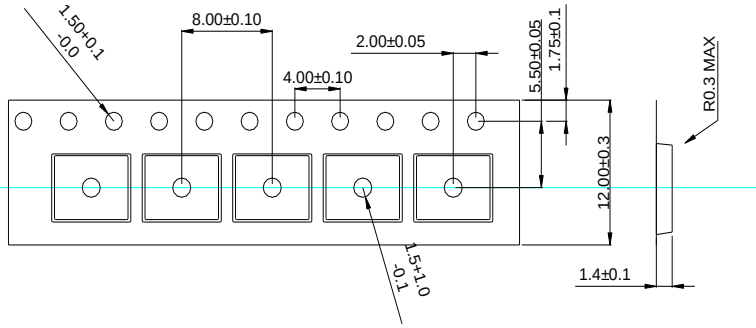


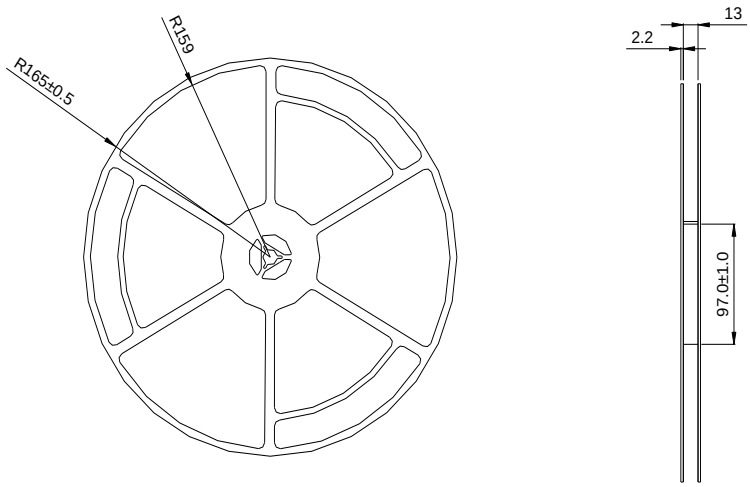
Dimension	A	b	c	D	D1	D2	E	E1	E2	e	L	L1	L2	M
Min	0.85	0.3	0.15			0.5					0.45	0		0°
Typ.	0.95	0.4	0.2	5.2	4.35	0.6	5.55	6.05	3.82	1.27	0.55		0.68	
Max	1	0.5	0.25			0.75					0.65	0.15		10°

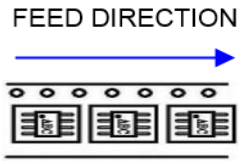
Footprint



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





產品別	EDFN5X6
Reel尺寸	13"
編帶方式	
前空格	25
後空格	50
裝箱數	
滿捲數量	2.5K
捲/內盒比	01:01
內盒滿箱數	2.5K
內/外箱比	10:01
外箱滿箱數	25K