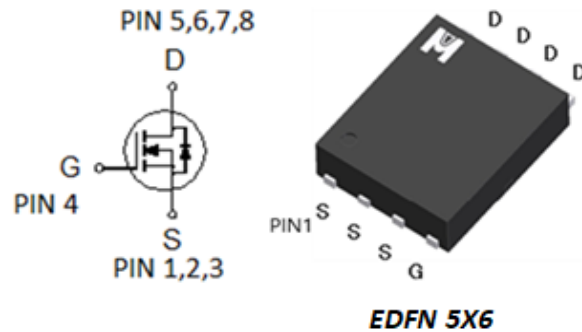


N-Channel Logic Level Enhancement Mode Field Effect Transistor

Product Summary:

BV _{DSS}	60V
R _{DS(on)} (MAX.) @V _{GS} =10V	5.2mΩ
R _{DS(on)} (MAX.) @V _{GS} =4.5V	7.5mΩ
I _D @T _C =25°C	77A



Single N Channel MOSFET

UIS, R_g 100% Tested

RoHS & Halogen Free & TSCA Compliant

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	77	A
	T _C = 100 °C		49	
Pulsed Drain Current ¹		I _{DM}	122	
Avalanche Current		I _{AS}	25	
Avalanche Energy	L = 0.1mH	E _{AS}	31.2	mJ
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=30V, L=0.1mH, V_G=10V, I_L=15A, Rated V_{DS}=60V N-CH

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNIT
Junction-to-Case	R _{θJC}		2.5	°C / W
Junction-to-Ambient ³	R _{θJA}		50	

¹Pulse width limited by maximum junction temperature.

²Duty cycle < 1%

³The value of R_{θJA} is measured with the device mounted on 1in² FR-4 board with 2oz.

Copper,

in a still air environment with T_A =25°C.

⁴Guarantee by Engineering test

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	60			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1.0	2.0	3.0	
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	μA
		V _{DS} = 40V, V _{GS} = 0V, T _J = 125 °C			25	
On-State Drain Current ¹	I _{D(ON)}	V _{DS} = 5V, V _{GS} = 10V	77			A
Drain-Source On-State Resistance ¹	R _{DS(ON)}	V _{GS} = 10V, I _D = 15A		4.2	5.2	mΩ
		V _{GS} = 4.5V, I _D = 10A		6.0	7.5	
Forward Transconductance ¹	g _{fs}	V _{DS} = 5V, I _D = 15A		69		S
DYNAMIC						
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = 30V, f = 1MHz		2117		pF
Output Capacitance	C _{oss}			1352		
Reverse Transfer Capacitance	C _{rss}			79		
Gate Resistance	R _g	V _{GS} = 15mV, V _{DS} = 0V, f = 1MHz		0.95		Ω
Total Gate Charge ^{1,2}	Q _g (V _{GS} =10V)	V _{DS} = 30V, V _{GS} = 10V, I _D = 15A		42		nC
Gate-Source Charge ^{1,2}	Q _{gs}			5.5		
Gate-Drain Charge ^{1,2}	Q _{gd}			12		
Turn-On Delay Time ^{1,2}	t _{d(on)}	V _{dd} =30V, I _D =5A, R _g =6 ohm, V _{gs} =10V		9.5		nS
Rise Time ^{1,2}	t _r			9		
Turn-Off Delay Time ^{1,2}	t _{d(off)}			32		
Fall Time ^{1,2}	t _f			28		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS						
Continuous Current	I _s				77	A
Pulsed Current ³	I _{SM}				122	
Forward Voltage ¹	V _{SD}	I _F = I _s , V _{GS} = 0V			1.3	V
Reverse Recovery Time	t _{rr}	I _F =15A, di/dt=100 A/μS		45		nS
Reverse Recovery Charge	Q _{rr}			25		nC

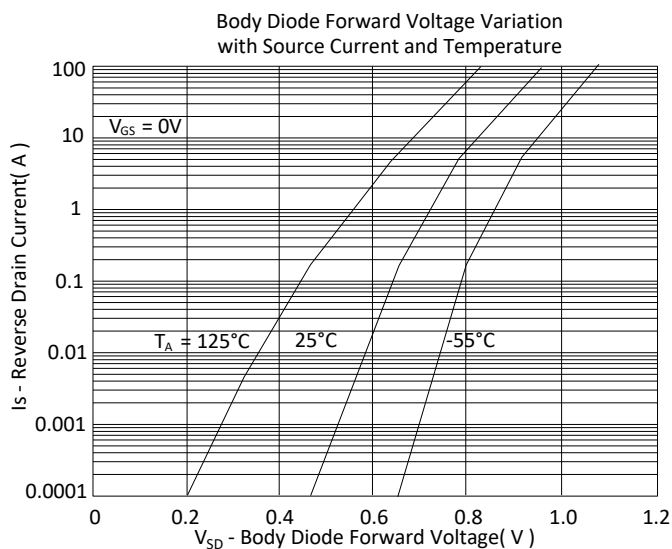
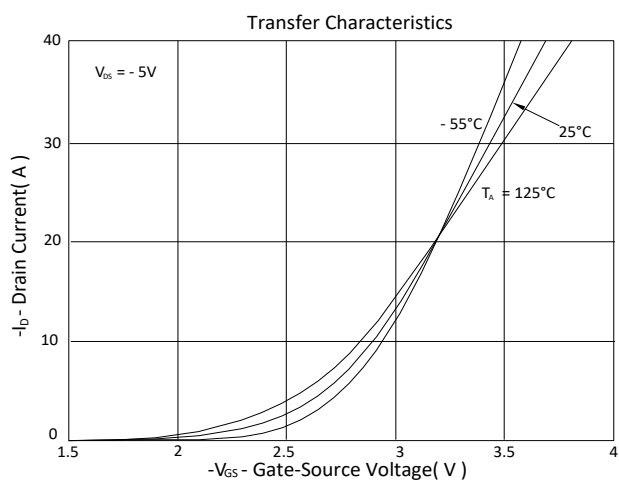
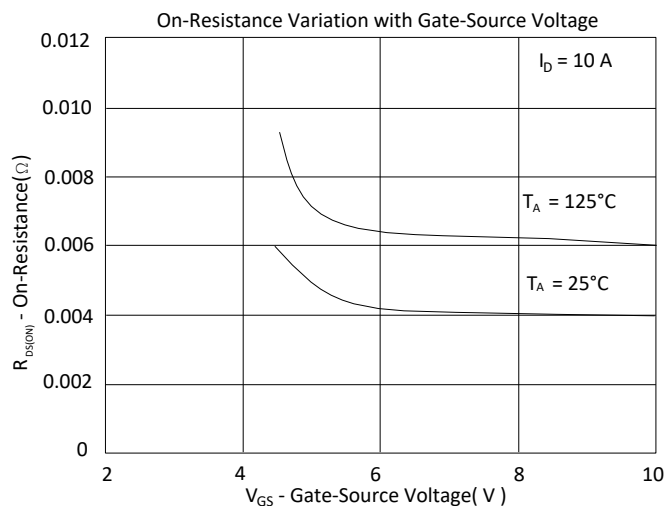
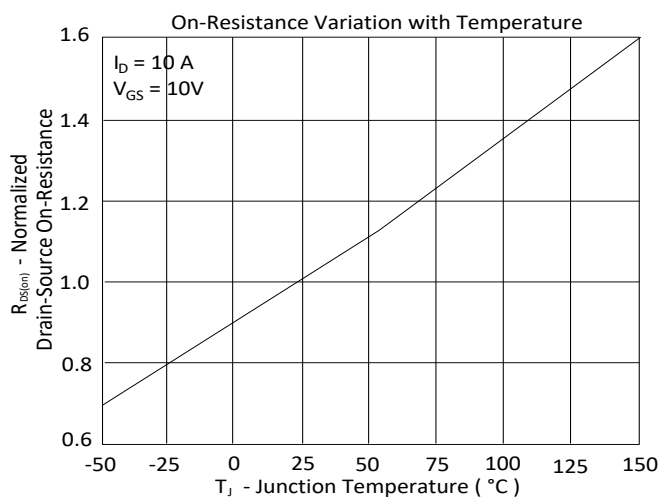
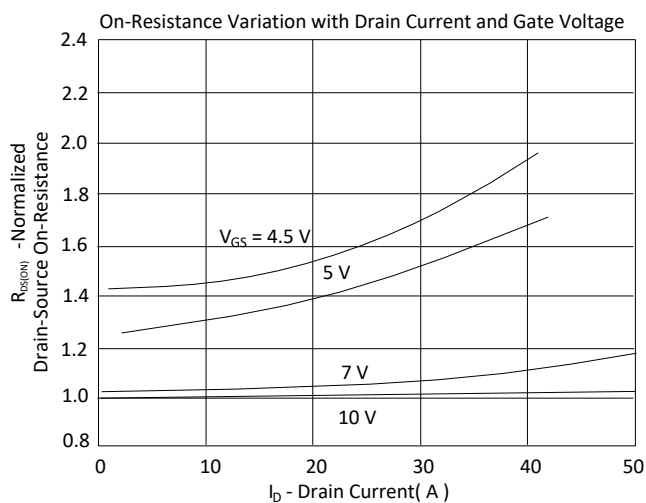
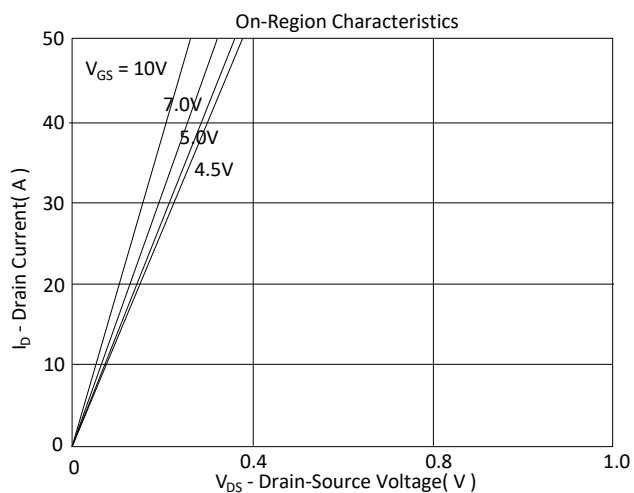
¹Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

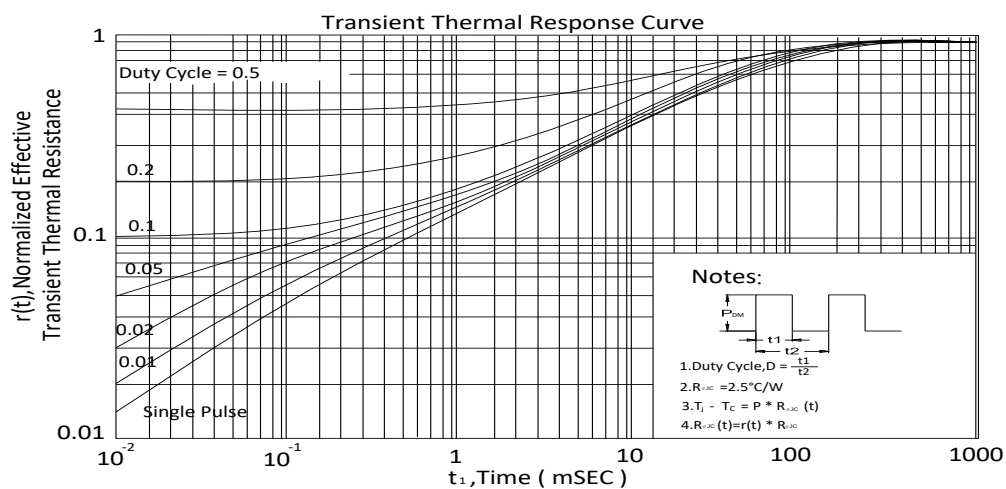
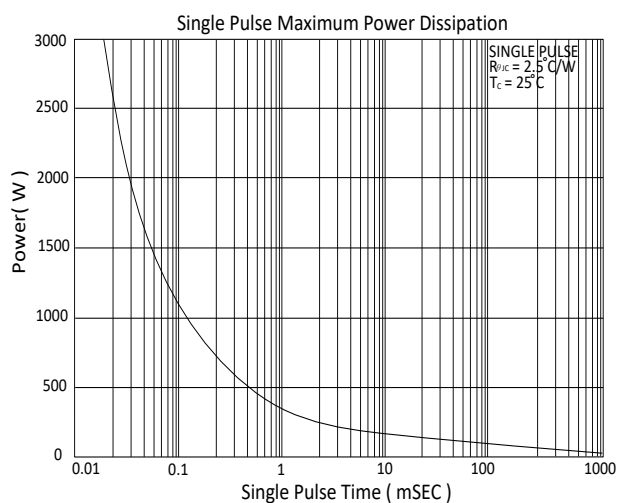
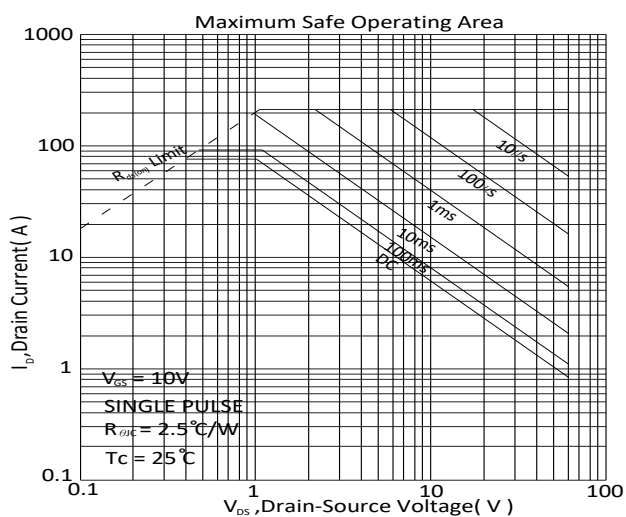
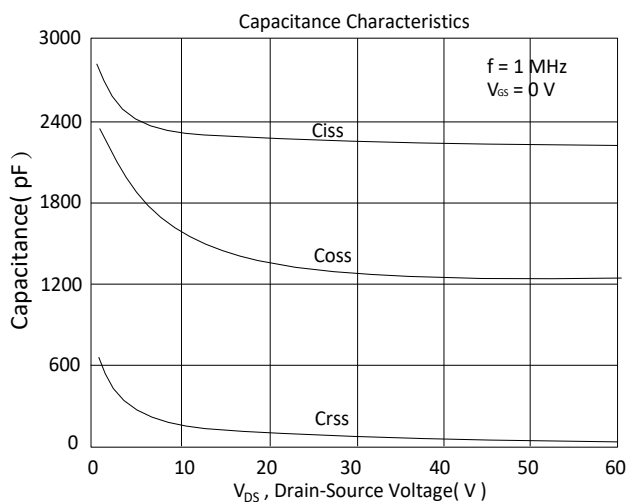
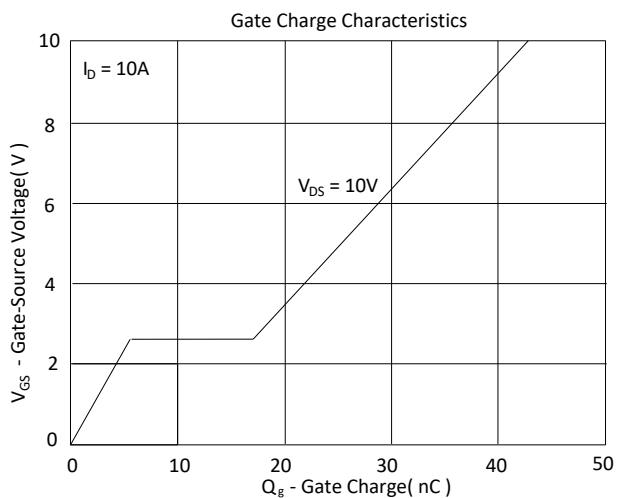
²Independent of operating temperature.

³Pulse width limited by maximum junction temperature.

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

TYPICAL CHARACTERISTICS





Ordering & Marking Information:

Device Name: EMB06N06HS for EDFN5X6



B06N06S: Device Name

ABCDEFGH: Date Code

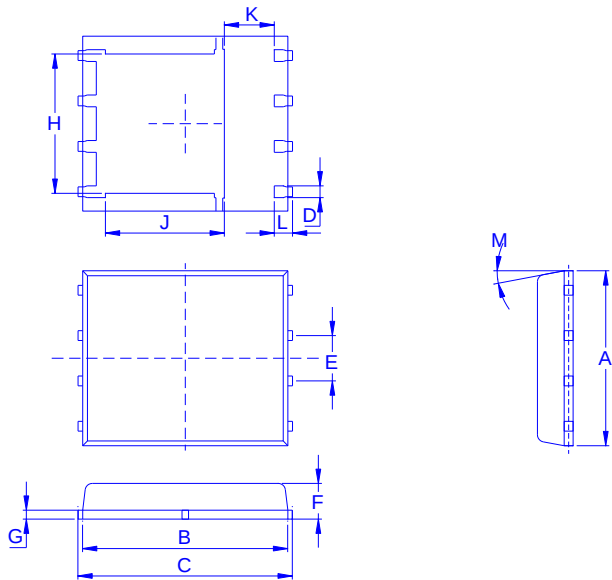
A: Assembly House

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.

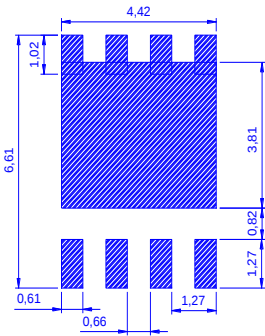
Outline Drawing



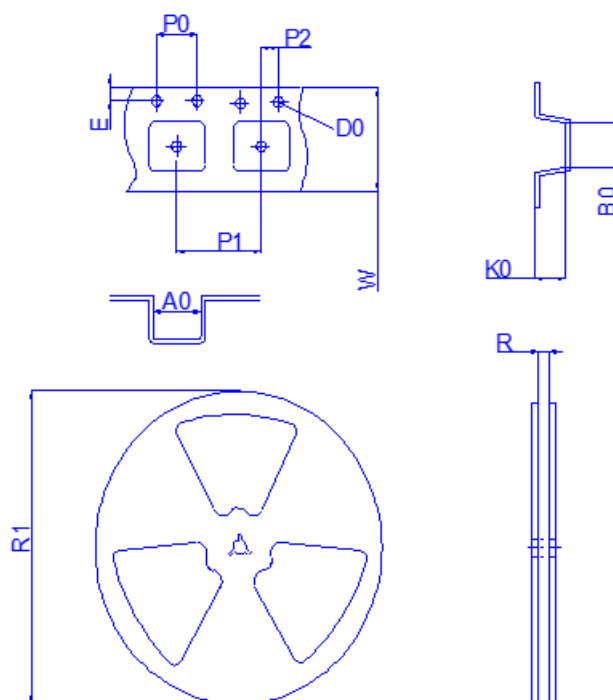
Dimension in mm

Dimension	A	B	C	D	E	F	G	H	J	K	L	M
Min	4.8	5.55	5.9	0.3	1.17	0.85	0.15	3.61	3.18	1	0.38	0°
Typ.	4.9	5.7	6	0.4	1.27	0.95	0.2	3.87	3.44	1.2	0.4	
Max	5.4	5.85	6.15	0.51	1.37	1.17	0.34	4.31	3.78	1.39	0.71	12°

Recommended minimum pads



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



Package	EDFN5X6
Reel	13"
Device orientation	FEED DIRECTION

Dimension in mm

Dimension	Carrier tape									Reel	
	A0	B0	D0	E	K0	P0	P1	P2	W	R	R1
Typ.	6.4	5.3	1.5	1.8	1.6	4	8	2	12	12.4	330
±	0.2	0.2	0.1	0.1	0.6	0.1	0.1	0.1	0.3	2	2