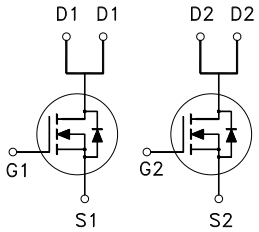
杰力科技股份有限公司
Excelliance MOS Corporation

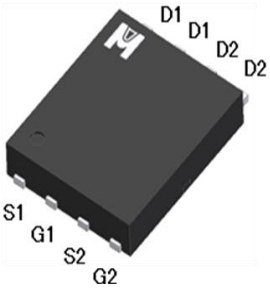
EMBB0A10H

Dual N-Channel Logic Level Enhancement Mode Field Effect Transistor

Product Summary:

BV_{DSS}	100V
$R_{DSON\ (MAX.)}$	220mΩ
I_D	5.7A





UIS 100% Tested

RoHS & Halogen Free & TSCA Compliant

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	T_C = 25 °C	I_D	5.7	A
	T_C = 100 °C		3.6	
Pulsed Drain Current[1]		I_{DM}	22	
Avalanche Current		I_{AS}	3	
Avalanche Energy	L = 0.1mH, ID=3A, RG=25Ω	E_{AS}	0.45	mJ
Repetitive Avalanche Energy[2]	L = 0.05mH	E_{AR}	0.225	
Power Dissipation	T_C = 25 °C	P_D	12.5	W
	T_c= 100 °C		5	
Operating Junction & Storage Temperature Range		T_j, T_{stg}	-55 to 150	°C

100% UIS testing in condition of VD=50V, L=0.1mH, VG=10V, IL=1.8A, Rated VDS=100V N-CH_Q1

100% UIS testing in condition of VD=50V, L=0.1mH, VG=10V, IL=1.8A, Rated VDS=100V N-CH_Q2

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNIT
Junction-to-Case	$R_{\theta JC}$		10	°C / W
Junction-to-Ambient[3]	$R_{\theta JA}$		75	

[1]Pulse width limited by maximum junction temperature.

[2]Duty cycle < 1%

[3]The value of $R_{\theta JA}$ is measured with the device mounted on 1in^2 FR-4 board with 2oz.

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

[4]Guarantee 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	100			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	1	1.5	2.9	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 80V, V_{GS} = 0V			1	μA
		V_{DS} = 70V, V_{GS} = 0V, T_J = 125 °C			25	
On-State Drain Current[1]	$I_{D(ON)}$	V_{DS} = 5V, V_{GS} = 10V	5.7			A
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = 10V, I_D = 3A		185	220	mΩ
		V_{GS} = 4.5V, I_D = 2A		215	260	
Forward Transconductance[1]	g_{fs}	V_{DS} = 5V, I_D = 3A		4		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 50V, f = 1MHz		858		pF
Output Capacitance	C_{oss}			38		
Reverse Transfer Capacitance	C_{rss}			27		
Total Gate Charge[1,2]	Q_g(V_{GS}=10V)	V_{DS} = 15V, V_{GS} = 10V, I_D = 3A		14.3	20	nC
	Q_g(V_{GS}=5V)			8	10	
Gate-Source Charge[1,2]	Q_{gs}			2.9		
Gate-Drain Charge[1,2]	Q_{gd}			3.4		
Turn-On Delay Time[1,2]	$t_{d(on)}$	V_{DS} = 15V, I_D = 5A, V_{GS} = 10V, R_G = 6Ω		20		nS
Rise Time[1,2]	t_r			30		
Turn-Off Delay Time[1,2]	$t_{d(off)}$			36		
Fall Time[1,2]	t_f			30		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_C = 25 °C)						
Continuous Current	I_S				5.7	A
Pulsed Current[3]	I_{SM}				22	
Forward Voltage[1]	V_{SD}	I_F = I_S, V_{GS} = 0V			1.2	V
Reverse Recovery Time	t_{rr}	I_F = 3A, dI_F/dt = 100A / μS		50		nS
Reverse Recovery Charge	Q_{rr}			90		nC

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

[2]Independent of operating temperature.

[3]Pulse width limited by maximum junction temperature.

Ordering & Marking Information:

Device Name: EMBB0A10H for EDFN 5 x 6

EMBB0A10: Device Name

ABCDEFG: Date Code

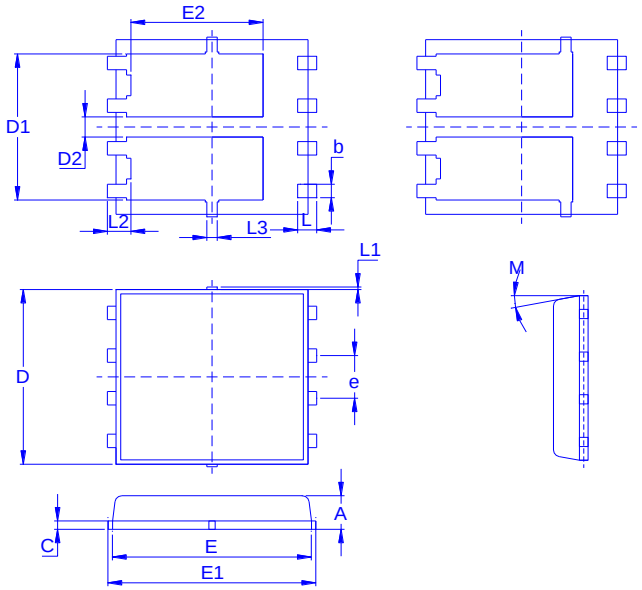
A: Assembly House

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.

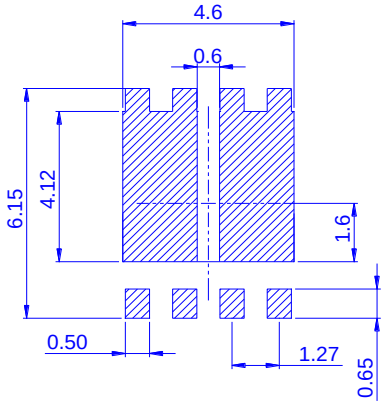
Outline Drawing



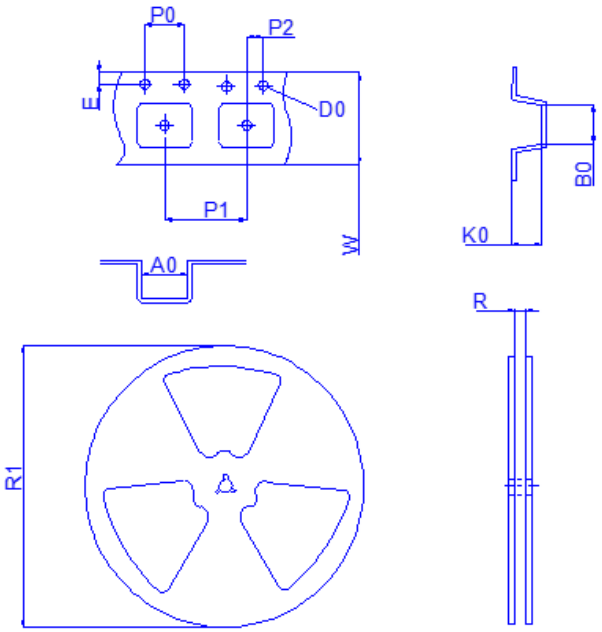
Dimension in mm

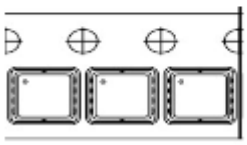
Dimension	A	b	c	D	D1	D2	E	E1	E2	e	L	L1	L2	M
Min.	0.85	0.3	0.15	4.8	3.41	0.47	5.65	5.95	3.30		0.38	0	0.38	0°
Typ.	1.01	0.4	0.2	5	4.01	0.67	5.75	6.05	3.43	1.27	0.55	0.09	0.48	
Max.	1.17	0.5	0.25	5.2	4.61	0.87	5.85	6.15	3.58		0.71	0.18	0.58	12°

Recommended minimum pads



Tape&Reel Information:2500pcs/Reel

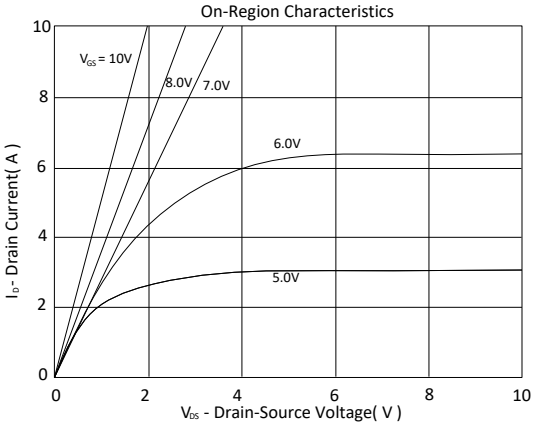


Package	EDFN5X6
Reel	13"
Device orientation	FEED DIRECTION 

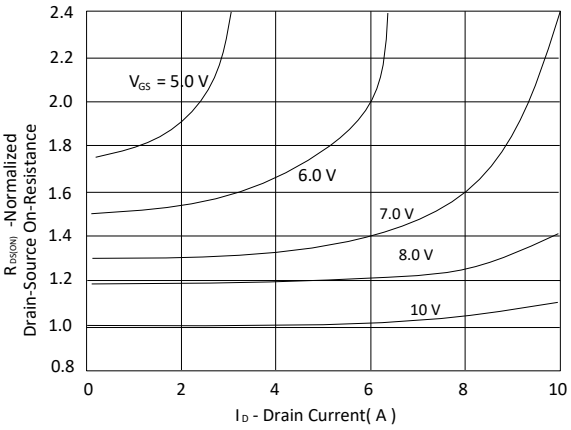
Dimension in mm

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

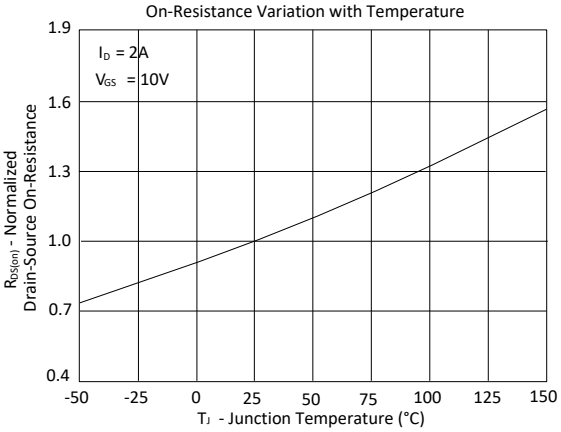
On-Region Characteristics



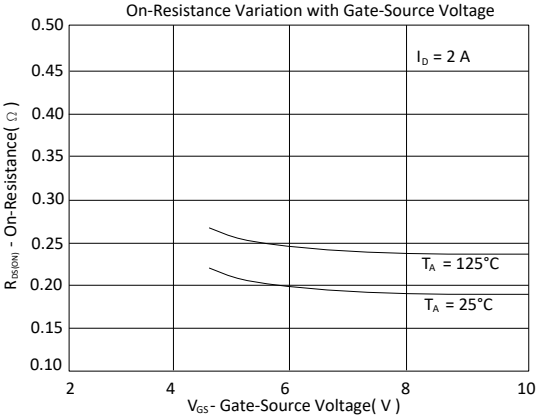
On-Resistance Variation with Drain Current and Gate Voltage



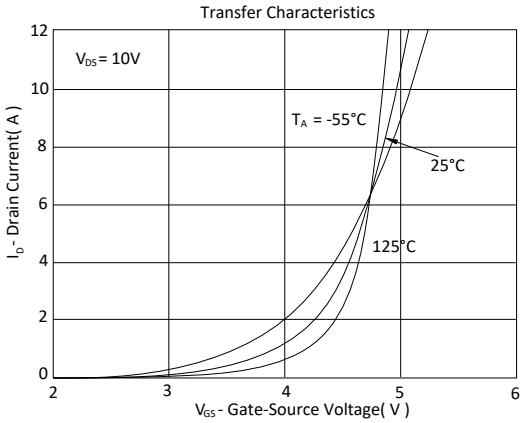
On-Resistance Variation with Temperature



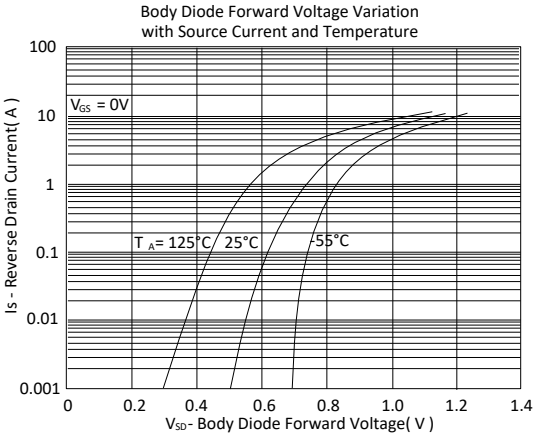
On-Resistance Variation with Gate-Source Voltage



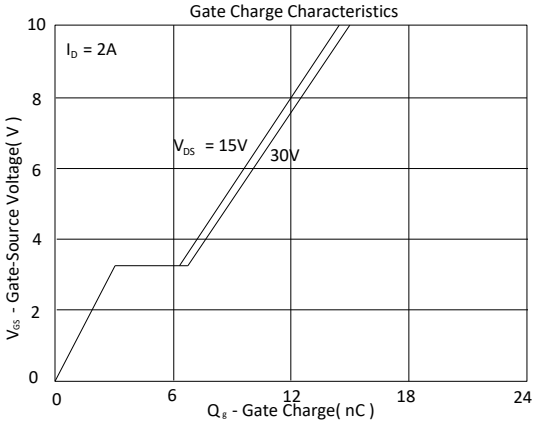
Transfer Characteristics



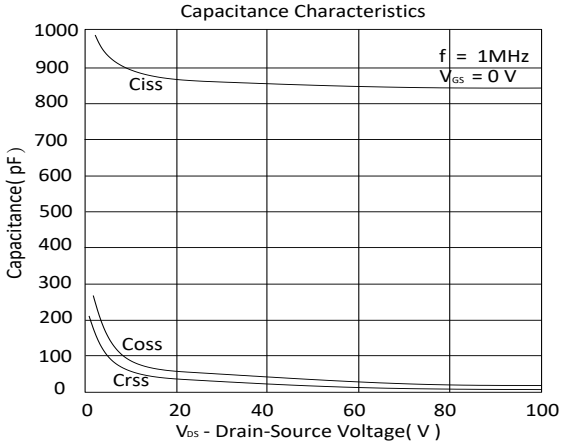
Body Diode Forward Voltage Variation
with Source Current and Temperature



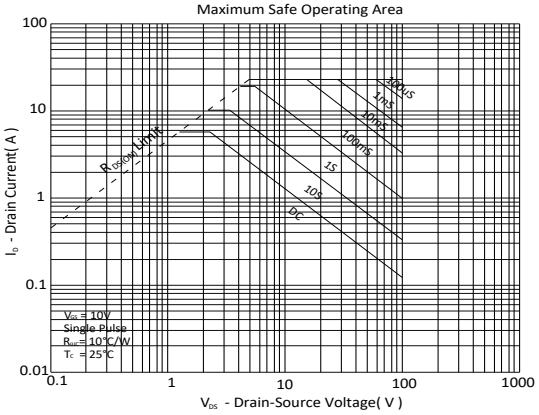
Gate Charge Characteristics



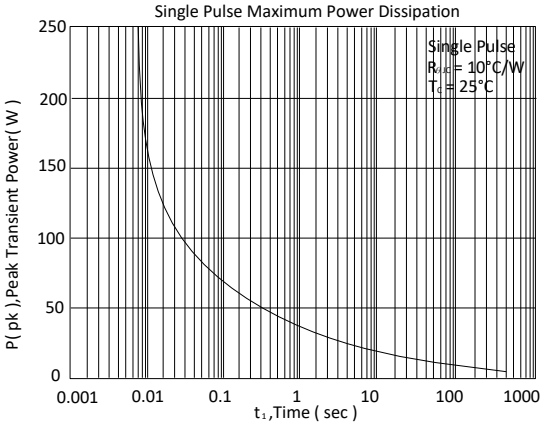
Capacitance Characteristics



Maximum Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve