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

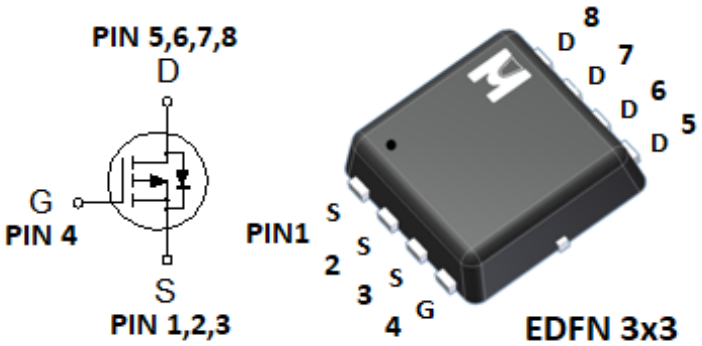
EMB28P06V

Single P-Channel Logic Level Enhancement Mode Field Effect Transistor

▪Product Summary:

	P-CH
BV_{DSS}	-60V
$R_{DSON\ (MAX.)}$@V_{GS}=-10V	25mΩ
$R_{DSON\ (MAX.)}$@V_{GS}=-4.5V	33mΩ
I_D @T_C=25°C	-33A

▪ Pin Description:



Single P Channel MOSFET
UIS, Rg 100% Tested
Pb-Free Lead Plating & Halogen Free

▪ 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[1]	T_C = 25 °C	I_D	-33	A
	T_C = 100 °C		-21	
	T_A = 25 °C		-7	
	T_A = 70 °C		-5	
Pulsed Drain Current[1]		I_{DM}	-53	
Avalanche Current[1]		I_{AS}	-45	
Avalanche Energy[1]	L = 0.1mH	E_{AS}	101	mJ
Repetitive Avalanche Energy[2]	L = 0.05mH	E_{AR}	50.6	
Power Dissipation[1]	T_C = 25 °C	P_D	41.7	W
	T_C = 100 °C		16.7	
Power Dissipation	T_A = 25 °C	P_D	2.1	W
	T_A = 70 °C		1.3	
Operating Junction & Storage Temperature Range		T_j, T_{stg}	-55 to 150	℃

▪ 100% UIS testing in condition of VD=-30V, L=0.1mH, VG=10V, IL=28A, Rated VDS=-60V P-CH

▪THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNIT
Junction-to-Case	$R_{\theta JC}$		3	°C / W
Junction-to-Ambient[3]	$R_{\theta JA}$		60	

[1]Pulse width limited by maximum junction temperature.
[2]Duty cycle ≦ 1%
[3]60°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	-2	-3	
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} = -40V, V_{GS} = 0V, T_J = 125 °C			-25	
On-State Drain Current[1]	$I_{D(ON)}$	V_{DS} = -5V, V_{GS} = -10V	-33			A
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = -10V, I_D = -10A		21	25	mΩ
		V_{GS} = -4.5V, I_D = -8A		26	33	
Forward Transconductance[1]	g_{fs}	V_{DS} = -5V, I_D = -10A		4		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = -30V, f = 1MHz		3334		pF
Output Capacitance	C_{oss}			175		
Reverse Transfer Capacitance	C_{rss}			137		
Gate Resistance	R_g	f = 1MHz		3.0		Ω
Total Gate Charge[1,2]	Q_g(V_{GS}=10V)	V_{DS} = -30V, V_{GS} = -10V, I_D = -10A		66.7		nC
	Q_g(V_{GS}=4.5V)			33.7		
Gate-Source Charge[1,2]	Q_{gs}			6.8		
Gate-Drain Charge[1,2]	Q_{gd}			14.5		
Turn-On Delay Time[1,2]	$t_{d(on)}$	V_{DS} = -30V, V_{GS} = -10V, I_D = -1A , Rg = 6Ω		9		nS
Rise Time[1,2]	t_r			9		
Turn-Off Delay Time[1,2]	$t_{d(off)}$			130		
Fall Time[1,2]	t_f			41		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS						
Continuous Current	I_S				-33	A
Pulsed Current[3]	I_{SM}				-53	
Forward Voltage[1]	V_{SD}	I_F = I_S, V_{GS} = 0V			-1.2	V
Reverse Recovery Time	t_{rr}	I_F = I_S, dI_F/dt = 100A / uS		24.6		nS
Peak Reverse Recovery Current	$I_{RM(REC)}$			2.57		A
Reverse Recovery Charge	Q_{rr}			28.8		nC

[1]Pulse test : Pulse Width ≦ 300 usec, 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

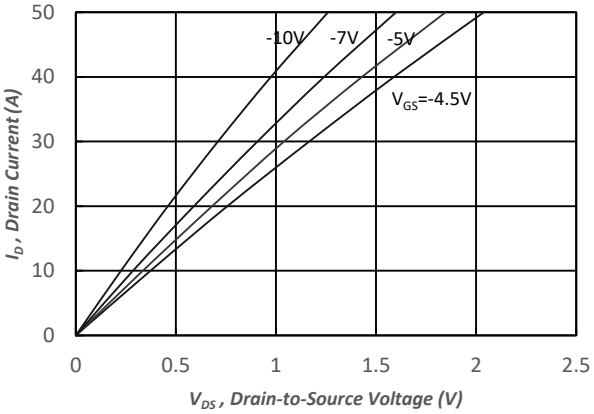


Fig.1 Typical Output Characteristics

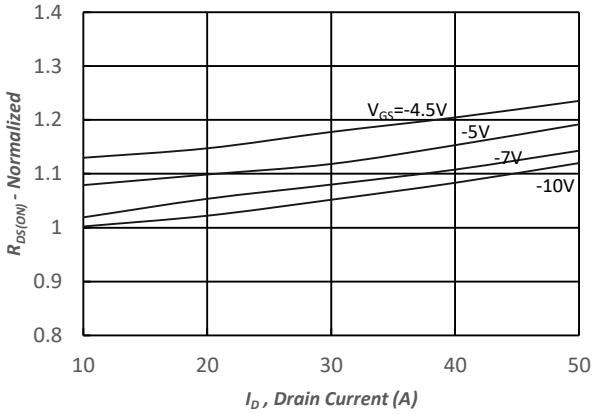


Fig.2 On-Resistance Variation with Drain Current and Gate Voltage

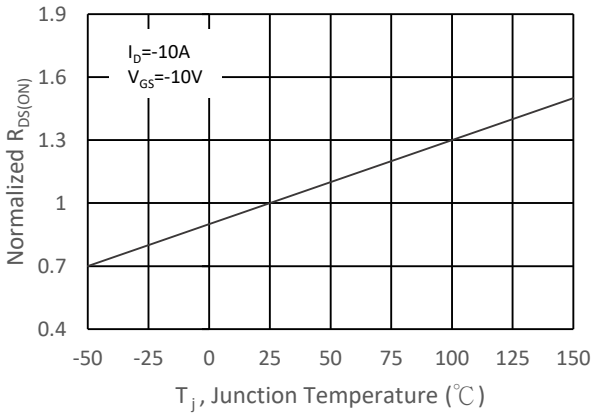


Fig.3 Normalized On-Resistance v.s. Junction Temperature

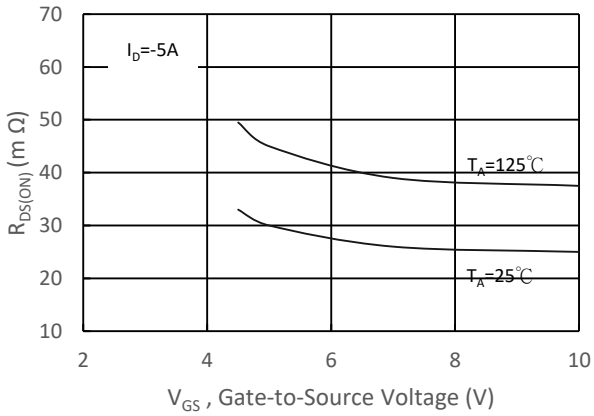


Fig.4 On-Resistance v.s. Gate Voltage

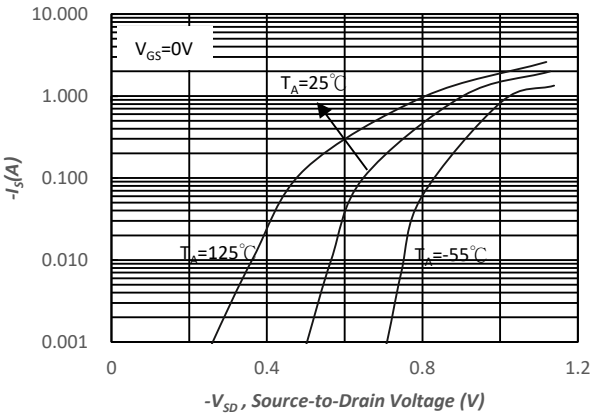


Fig.5 Forward Characteristic of Reverse Diode

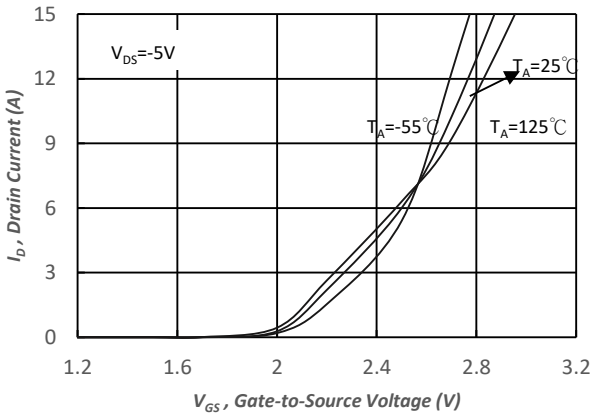


Fig.6 Transfer Characteristics

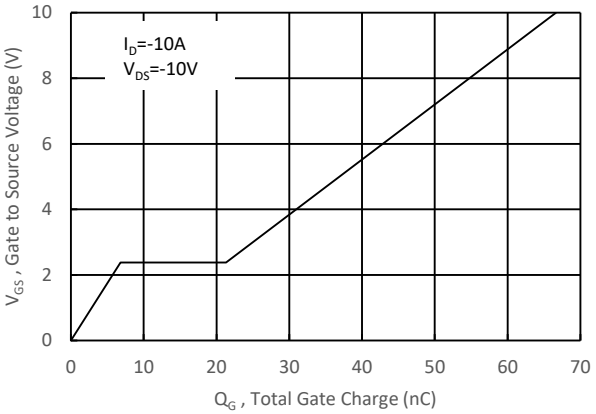


Fig.7 Gate Charge Characteristics

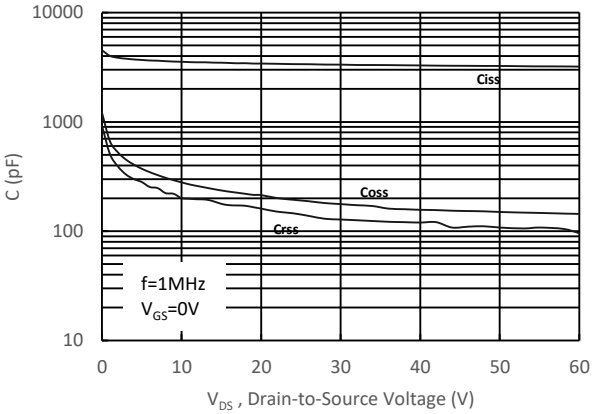


Fig.8 Typical Capacitance Characteristics

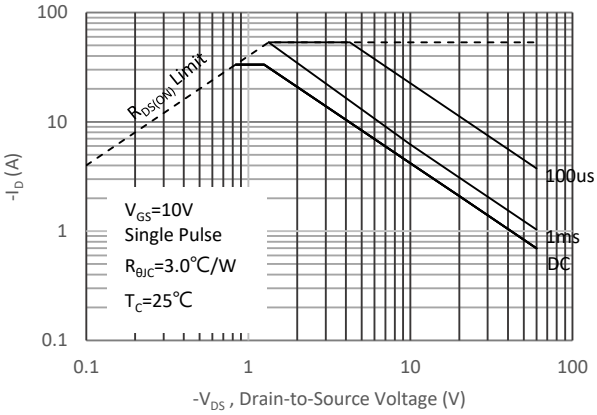


Fig 9. Maximum Safe Operating Area

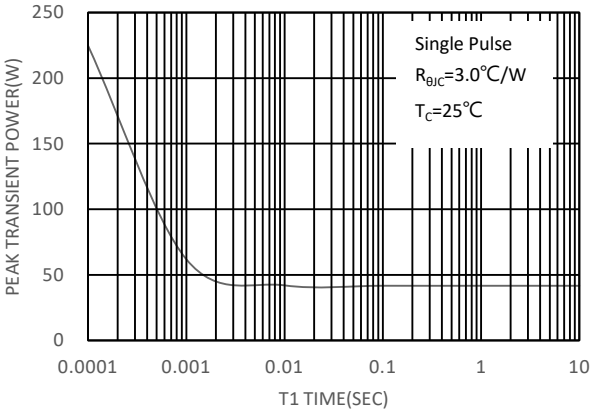


Fig 10. Single Pulse Maximum Power Dissipation

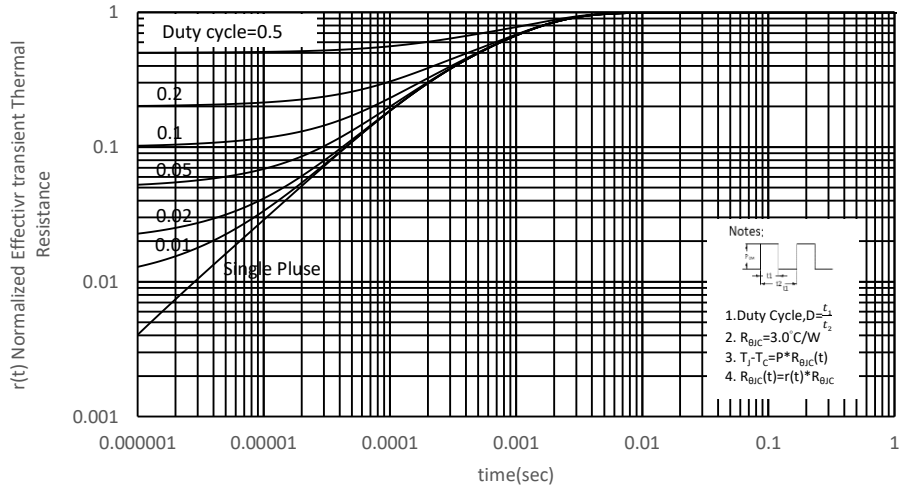


Fig 11. Effective Transient Thermal Impedance

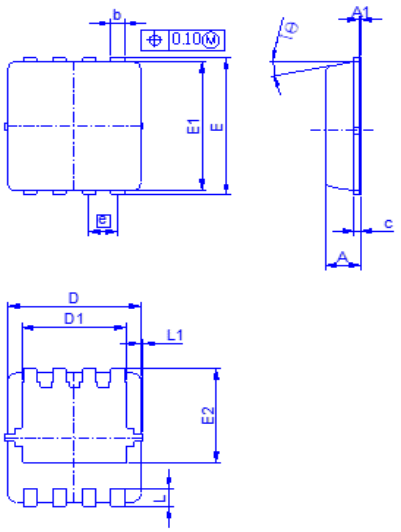
Ordering & Marking Information:

Device Name: EMB28P06V for EDFN 3x3

B28P06: Device Name

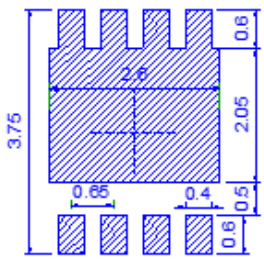
ABCDEFG: Date Code
A: Assembly House
B: Year(A:2008 B:2009 C:2010….)
C: Month(A:01 B:02 C:03 D:04 E:05 F:06 G:07 H:08 I:09 J:10 K:11 L:12)
DEFG: Serial No.

Outline Drawing

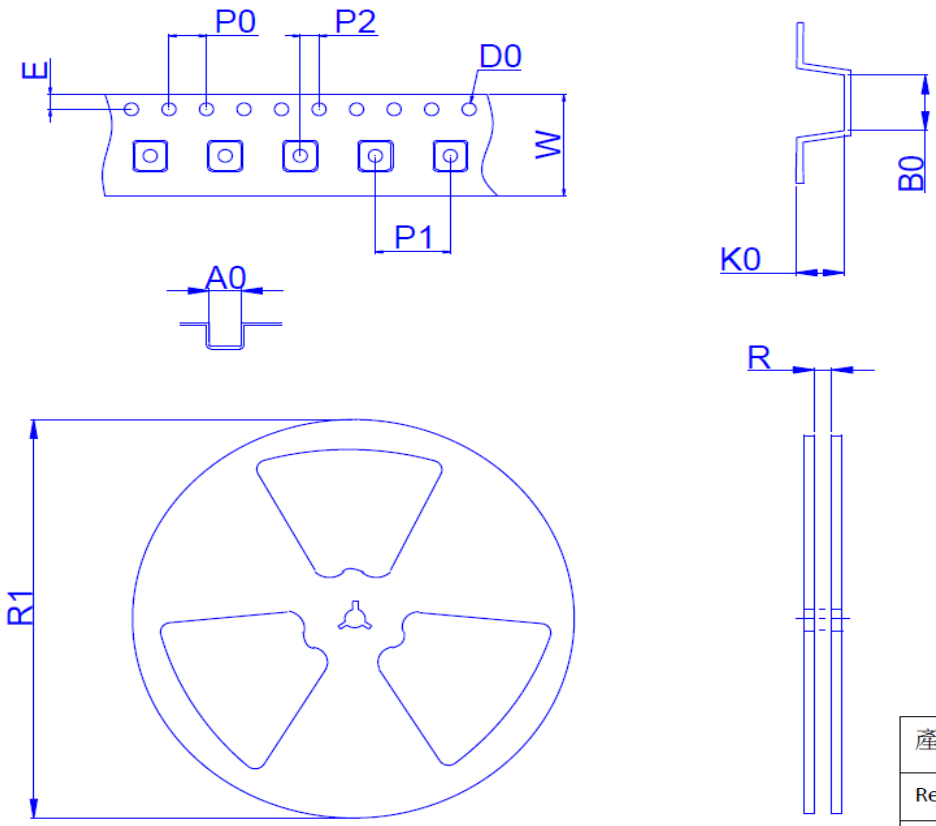


Dimension	A	A1	b	c	D	D1	E	E1	E2	e	L	L1	θ1
Min	0.65	0	0.2	0.1	2.9	2.15	3.1	2.9	1.53	0.55	0.25	-	0°
Typ.	0.75	-	0.3	0.15	3	2.45	3.2	3	1.97	0.65	0.4	0.075	10°
Max	0.9	0.05	0.4	0.25	3.3	2.74	3.5	3.3	2.59	0.75	0.6	0.15	14°

Footprint



◆ **Tape&Reel Information:5000pcs/Reel**
(Dimension in millimeter)



產品別	EDFN3X3
Reel 尺寸	13”
編帶 方式	FEED DIRECTION

Dimension in mm

Dimension	Carrier tape									Reel	
	A0	B0	D0	E	K0	P0	P1	P2	W	R	R1
Typ.	3.6	3.5	1.55	1.7	1.2	4	8	2	12	14	330
±	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.1	1	2	2

★Datasheet Latest version specification :

	Revision History	Prepared	Approved	Date
A.0	Initial Datasheet	Jannie	Andy	2015/10/1
A.1	Update thermal resistance coefficient and related information	Johnson	Sam	2020/3/3
A.2	Update Tape&Reel Information	Johnson	Sam	2020/11/12