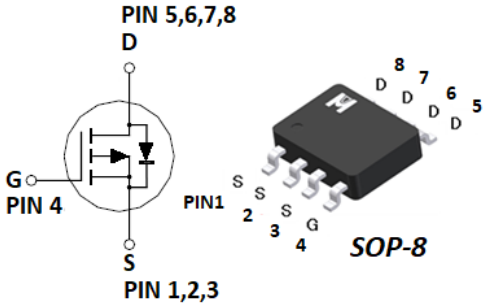
杰力科技股份有限公司
Excelliance MOS Corporation

EMB12P03G

P-Channel Logic Level Enhancement Mode Field Effect Transistor

Product Summary:

BV_{DSS}	-30V
$R_{DSON\ (MAX.)}(V_{GS=-10V})$	10mΩ
I_D	-13A



P Channel MOSFET

UIS, Rg 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}	±25	V
Continuous Drain Current	T_A = 25 °C	I_D	-13	A
	T_A = 100 °C		-10	
Pulsed Drain Current[1]		I_{DM}	-50	
Avalanche Current		I_{AS}	-15	
Avalanche Energy	L = 0.1mH, I_D=-15A, R_G=25Ω	E_{AS}	11.25	mJ
Repetitive Avalanche Energy[2]	L = 0.05mH	E_{AR}	5.62	
Power Dissipation	T_A = 25 °C	P_D	2.5	W
	T_A = 100 °C		1	
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=-10A, Rated V_{DS}=-30V P-CH

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNIT
Junction-to-Case	$R_{\theta JC}$		25	°C / W
Junction-to-Ambient[3,4]	$R_{\theta JA}$		50	

[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.

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} = ±25V			±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			-10	
On-State Drain Current[1]	$I_{D(ON)}$	V_{DS} = -5V, V_{GS} = -10V	-13			A
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = -10V, I_D = -13A		8.2	10	mΩ
		V_{GS} = -4.5V, I_D = -9A		12.5	16	
Forward Transconductance[1]	g_{fs}	V_{DS} = -5V, I_D = -10A		30		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = -15V, f = 1MHz		3067		pF
Output Capacitance	C_{oss}			453		
Reverse Transfer Capacitance	C_{rss}			398		
Gate Resistance	R_g	V_{GS} = 15mV, V_{DS} = 0V, f = 1MHz		4.0		Ω
Total Gate Charge[1,2]	Q_g(V_{GS}=10V)	V_{DS} = -15V, V_{GS} = -10V, I_D = -10A		52		nC
	Q_g(V_{GS}=4.5V)			23		
Gate-Source Charge[1,2]	Q_{gs}			6.5		
Gate-Drain Charge[1,2]	Q_{gd}			10		
Turn-On Delay Time[1,2]	$t_{d(on)}$	V_{DS} = -15V, I_D = -1A, V_{GS} = -10V, R_{GS} = 2.7Ω		15		nS
Rise Time[1,2]	t_r			12		
Turn-Off Delay Time[1,2]	$t_{d(off)}$			40		
Fall Time[1,2]	t_f			10		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_C = 25 °C)						
Continuous Current	I_S				-13	A
Pulsed Current[3]	I_{SM}				-50	
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 / μS		32		nS
Reverse Recovery Charge	Q_{rr}			26		nC

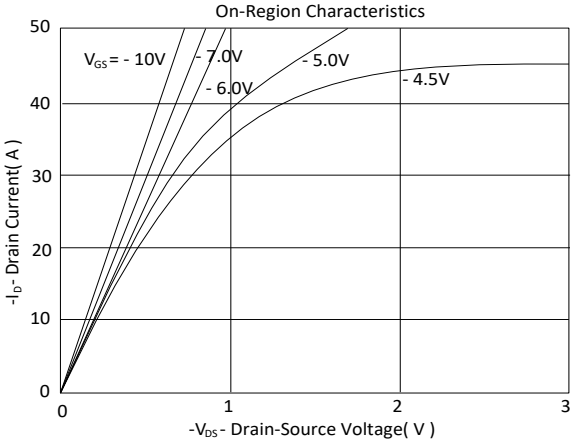
[1]Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

[2]Independent of operating temperature.

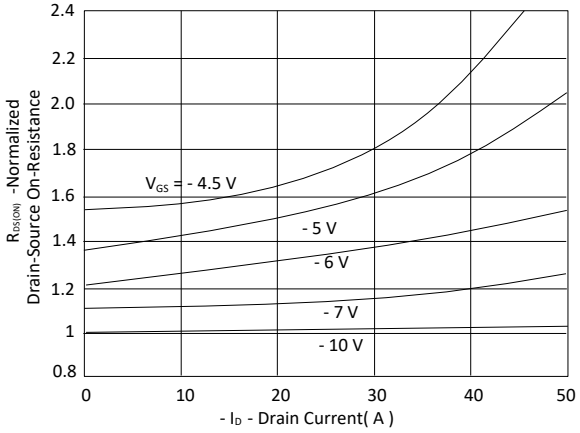
[3]Pulse width limited by maximum junction temperature.

TYPICAL CHARACTERISTICS

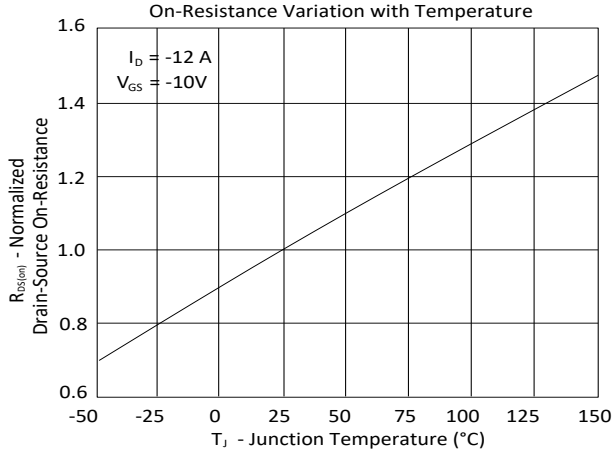
On-Region Characteristics



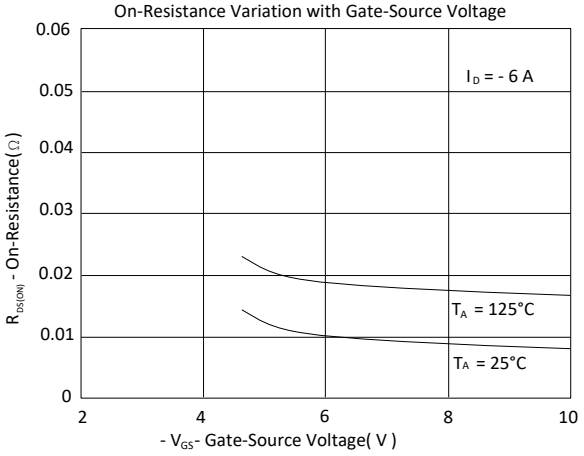
On-Resistance Variation with Drain Current and Gate Voltage



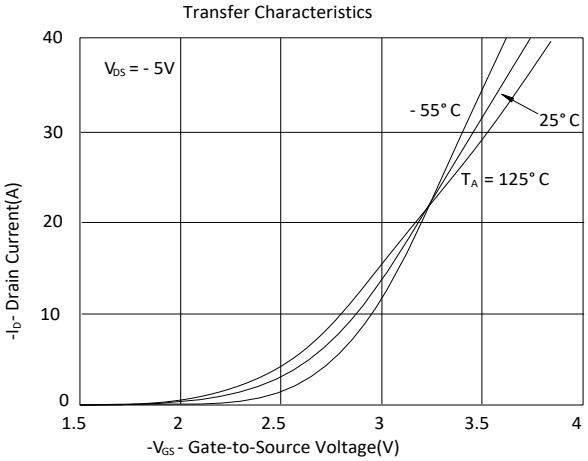
On-Resistance Variation with Temperature



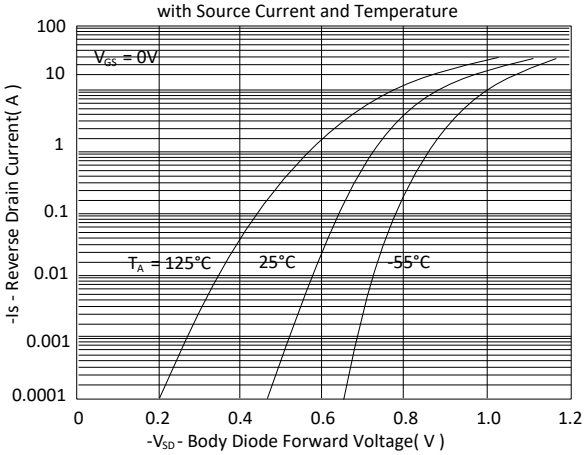
On-Resistance Variation with Gate-Source Voltage



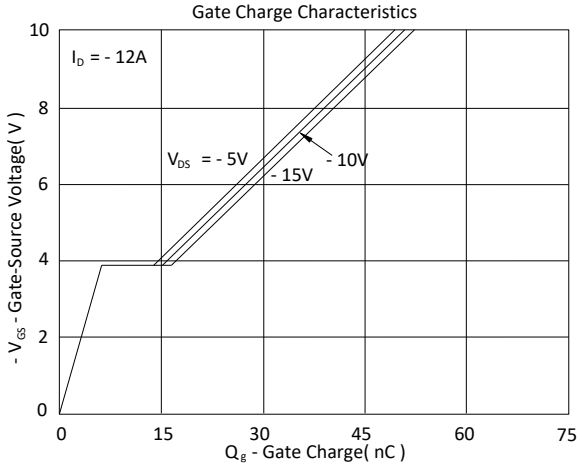
Transfer Characteristics



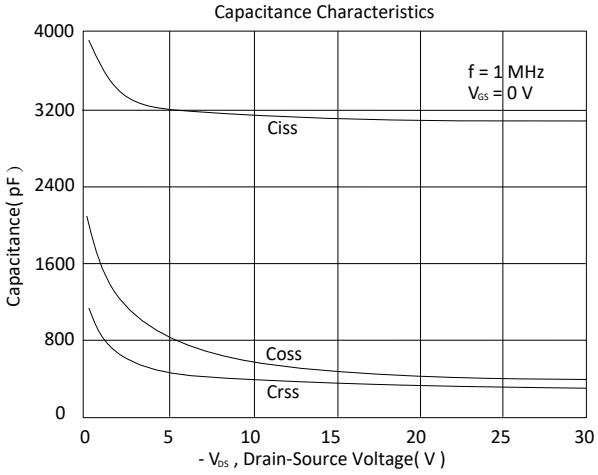
Body Diode Forward Voltage Variation with Source Current and Temperature



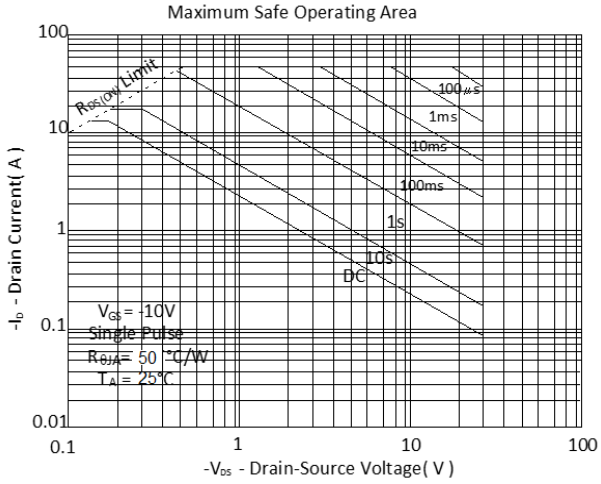
Gate Charge Characteristics



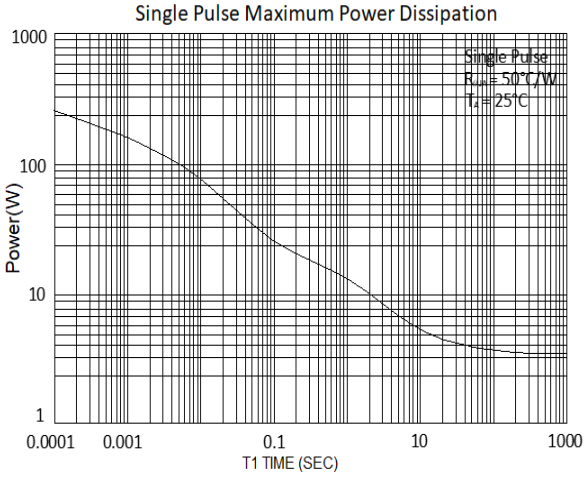
Capacitance Characteristics



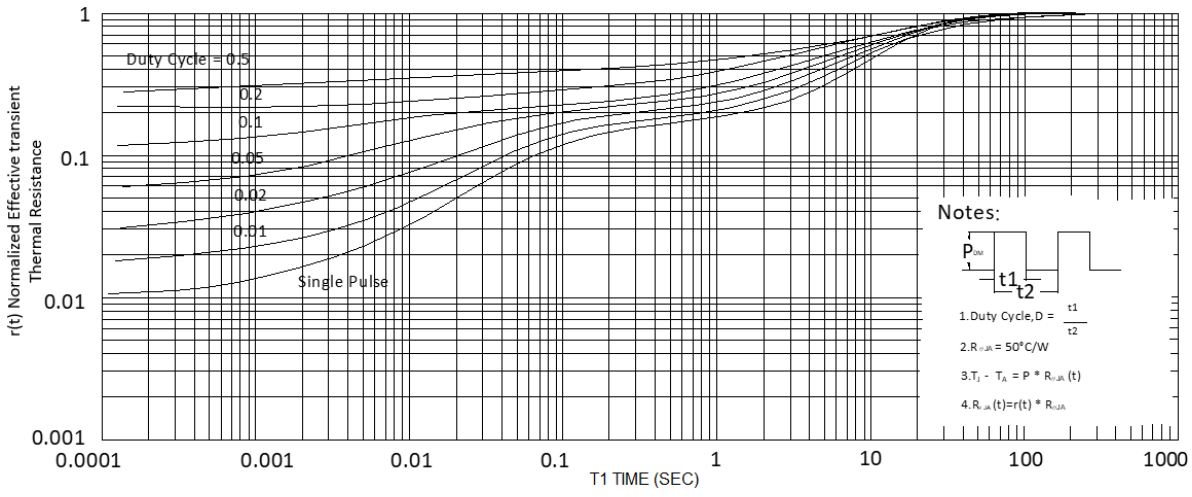
Maximum Safe Operating Area



Single Pulse Maximum Power Dissipation

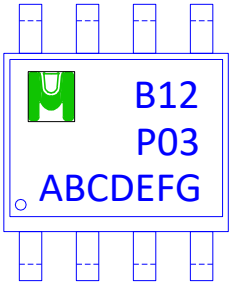


Transient Thermal Response Curve



Ordering & Marking Information:

Device Name: EMB12P03G for SOP-8



B12P03: Device Name

ABCDEFG: Date Code

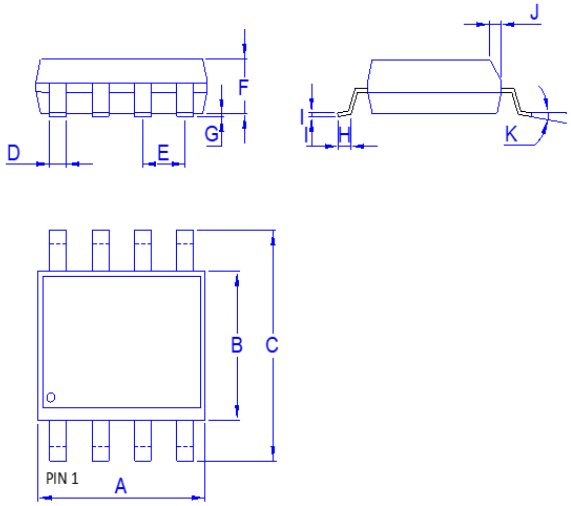
A: Assembly House

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.

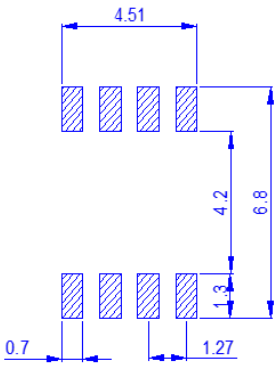
Outline Drawing



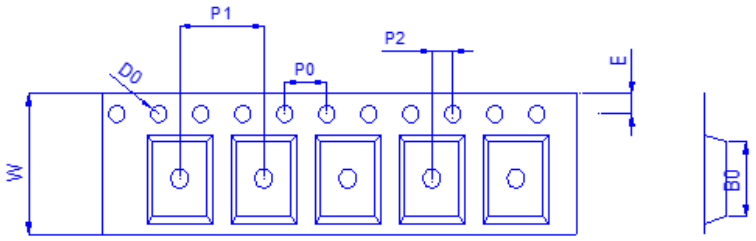
Dimension in mm

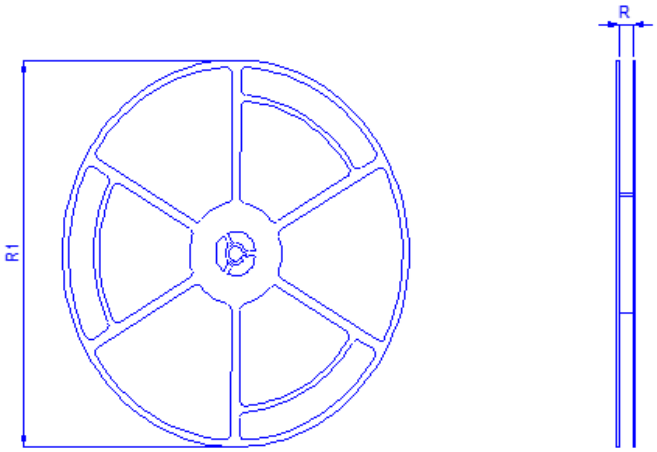
Dimension	A	B	C	D	E	F	G	H	I	J	K
Min.	4.70	3.80	5.80	0.31		1.35	0.01	0.40	0.10	0.25	0°
Typ.	4.90	3.90	6.00	0.41	1.27	1.55	0.18	0.60	0.20	0.30	
Max.	5.10	4.00	6.20	0.51		1.75	0.25	1.27	0.25	0.50	8°

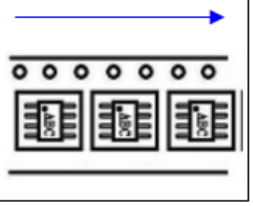
Footprint



Tape&Reel Information:2500pcs/Reel





Package	SOP-8
Reel	13"
Device orientation	FEED DIRECTION 

Dimension in mm

Dimension	Carrier tape							Reel	
	B0	D0	E	P0	P1	P2	W	R	R1
Typ.	6.5	1.5	1.75	4	8	2	12	12.4	330
±	0.4	0.2	0.2	0.2	0.2	0.2	0.5	REF	REF