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

EMB12P03A

P-Channel Logic Level Enhancement Mode Field Effect Transistor

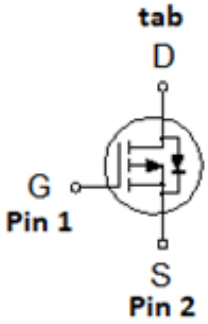
Product Summary:

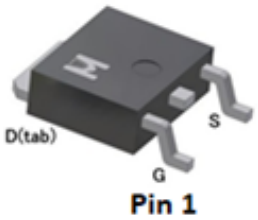
BV_{DSS}	-30V
$R_{DSON\ (MAX.)}$ @V_{GS}=-10V	12mΩ
$R_{DSON\ (MAX.)}$ @V_{GS}=-4.5V	20mΩ
I_D@T_C=25°C	-52A

Single P Channel MOSFET

UIS, Rg 100% Tested

Pb-Free Lead Plating & Halogen Free





TO-252

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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNIT
Gate-Source Voltage		V_{GS}	±25	V
Continuous Drain Current	T_C = 25 °C	I_D	-52	A
	T_C = 100 °C		-33	
Pulsed Drain Current[1]		I_{DM}	-166	
Avalanche Current		I_{AS}	-40	
Avalanche Energy	L = 0.1mH	E_{AS}	80	mJ
Repetitive Avalanche Energy[2]	L = 0.05mH	E_{AR}	40	
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

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNIT
Junction-to-Case	$R_{\theta JC}$		2.5	°C / W
Junction-to-Ambient[3]	$R_{\theta JA}$		75	

[1]Pulse width limited by maximum junction temperature.

[2]Duty cycle ≤ 1%

[3]75°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 = -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} = ±20V			±100	nA
		V_{DS} = 0V, V_{GS} = ±25V			±500	
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	-52			A
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = -10V, I_D = -20A		10.5	12	mΩ
		V_{GS} = -5V, I_D = -10A		15	20	
Forward Transconductance[1]	g_{fs}	V_{DS} = -5V, I_D = -20A		30		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = -15V, f = 1MHz		2363		pF
Output Capacitance	C_{oss}			385		
Reverse Transfer Capacitance	C_{rss}			326		
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 = -20A		45		nC
	Q_g(V_{GS}=4.5V)			20		
Gate-Source Charge[1,2]	Q_{gs}			5.6		
Gate-Drain Charge[1,2]	Q_{gd}			8.5		
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]	$t_{d(off)}$			35		
Fall Time[1,2]	t_f			10		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS						
Continuous Current	I_S				-52	A
Pulsed Current[3]	I_{SM}				-166	
Forward Voltage[1]	V_{SD}	I_F = -20A, V_{GS} = 0V			-1.3	V
Reverse Recovery Time	t_{rr}	I_F = I_S, dI_F/dt = 100A / μS		38		nS
Reverse Recovery Charge	Q_{rr}			32		nC

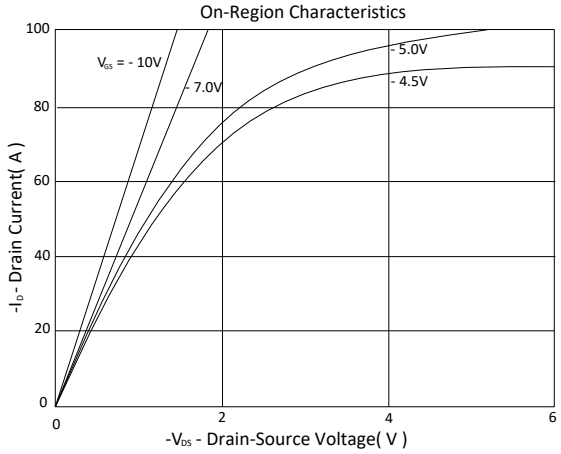
[1]Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

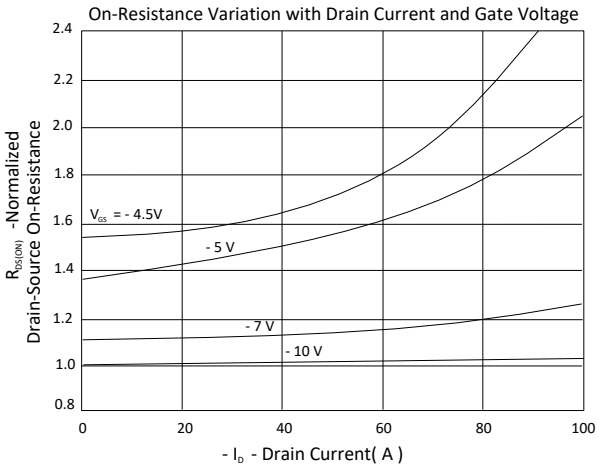
[2]Independent of operating temperature.

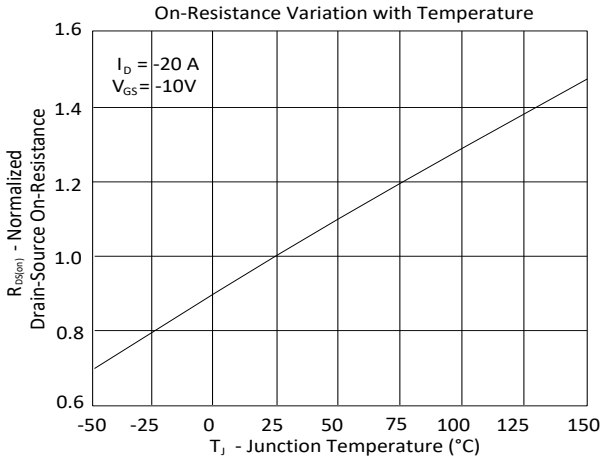
[3]Pulse width limited by maximum junction temperature.

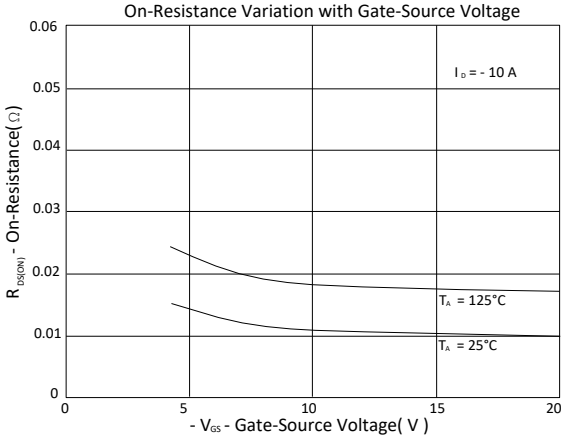
EMC will review datasheet by quarter, and update new version.

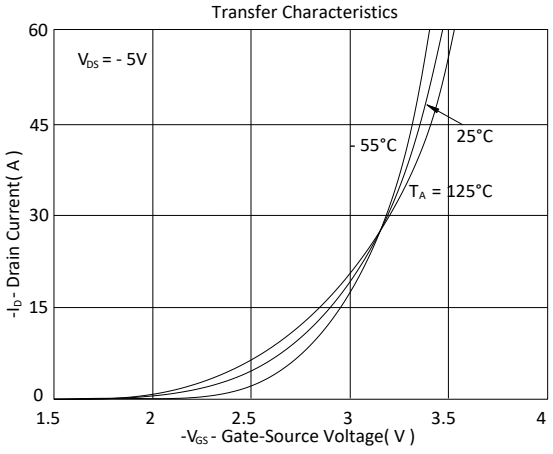
TYPICAL CHARACTERISTICS

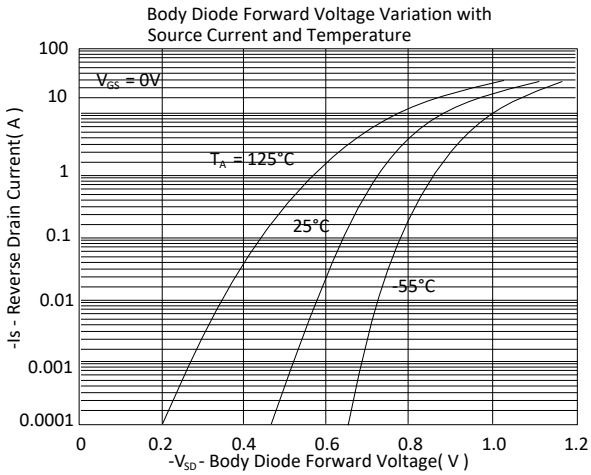




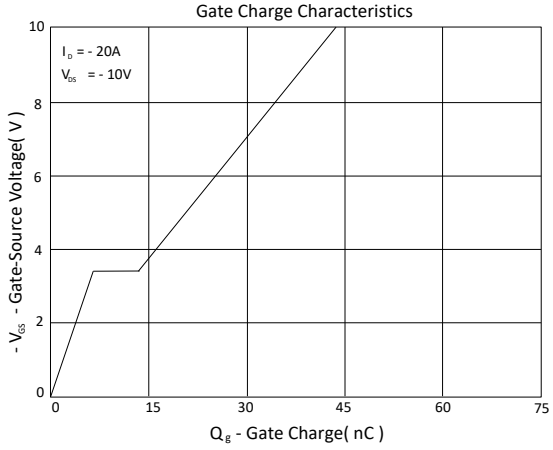




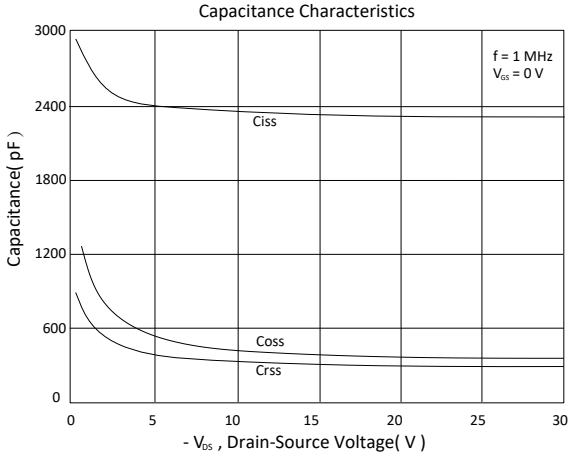




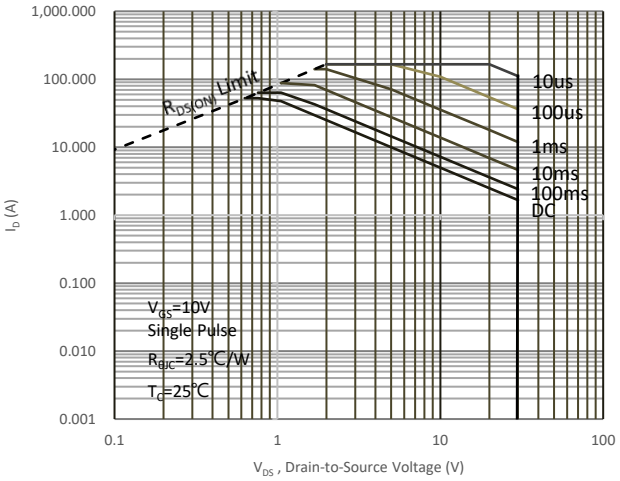
Gate Charge Characteristics



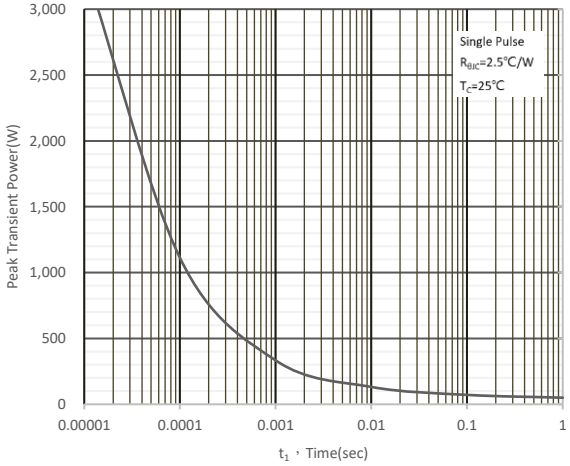
Capacitance Characteristics



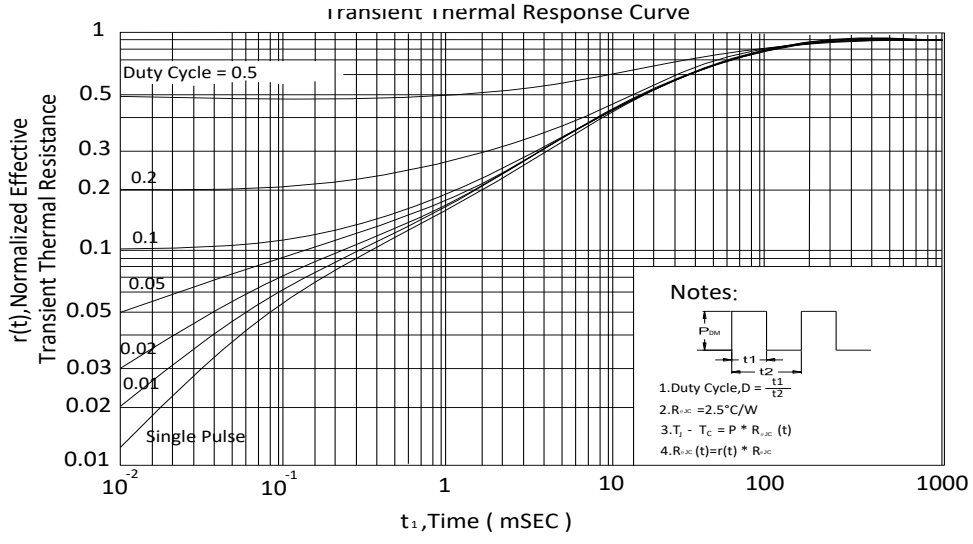
MAXIMUM SAFE OPERATING AREA



SINGLE PULSE MAXIMUM POWER DISSIPATION

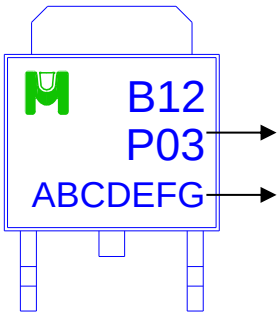


Transient Thermal Response Curve



Ordering & Marking Information:

Device Name: EMB12P03A for DPAK (TO-252)



B12P03: Device Name

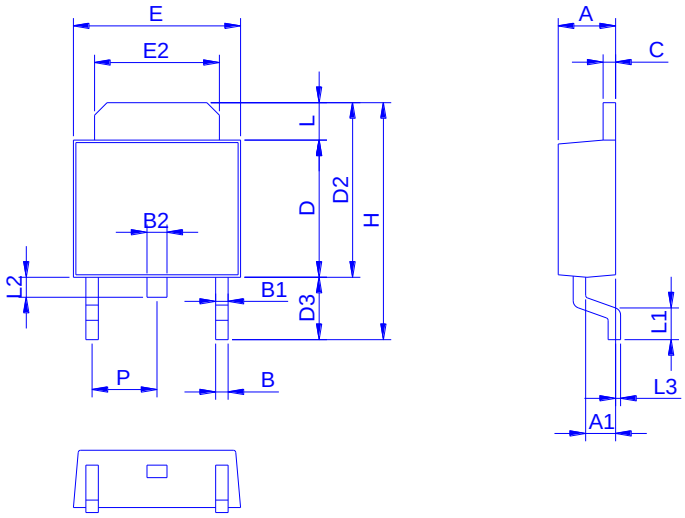
ABCDEFG: Date Code

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)

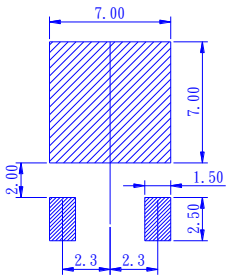
Outline Drawing



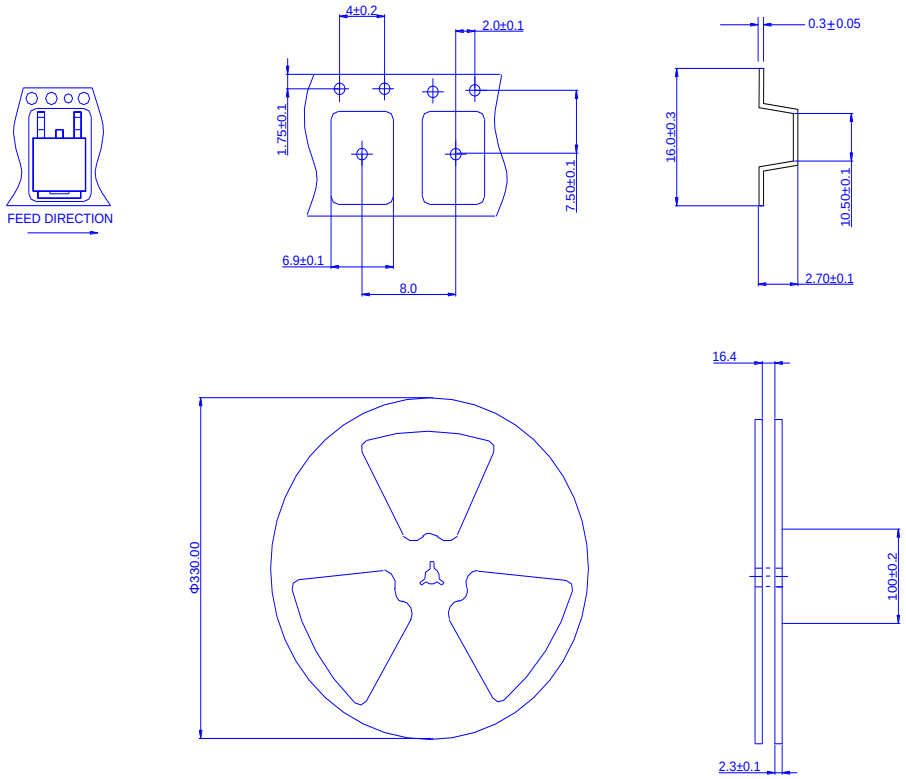
Dimension in mm

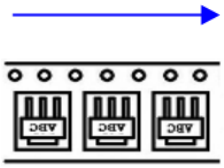
Dimension	A	A1	B	B1	B2	C	D	D2	D3	E	E2	H	L	L1	L2	L3	P
Min.	2.100	2.300	2.500	2.100	2.300	2.500	2.100	2.300	2.500	2.100	2.300	2.500	2.100	2.300	2.500	2.100	2.300
Typ.	0.950	1.125	1.300	0.950	1.125	1.300	0.950	1.125	1.300	0.950	1.125	1.300	0.950	1.125	1.300	0.950	1.125
Max.	0.300	0.575	0.850	0.300	0.575	0.850	0.300	0.575	0.850	0.300	0.575	0.850	0.300	0.575	0.850	0.300	0.575

Footprint



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



產品別	TO252-2
Reel 尺寸	13”
編帶方式	FEED DIRECTION 
前空格	35
後空格	35
裝箱數	
滿捲數量	2.5K
捲/內盒比	1：1
內盒滿箱數	2.5K
內/外箱比	10：1
外箱滿箱數	25K