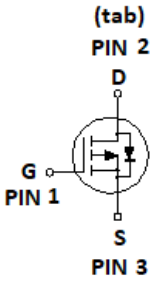
杰力科技股份有限公司
Excelliance MOS Corporation

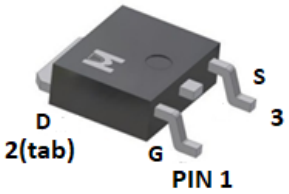
EMB07P03A

P-Channel Logic Level Enhancement Mode Field Effect Transistor

Product Summary:

BV_{DSS}	-30V
$R_{DSON\ (MAX.)}$	7.5 mΩ
I_D	-83A





TO-252 (DPAK)

Single P Channel MOSFET

UIS, Rg 100% Tested

RoHS & Halogen Free & TSCA Compliant

GP
GREEN PRODUCT

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	-83	A
	T_C = 100 °C		-53	
Pulsed Drain Current[1]		I_{DM}	-160	
Avalanche Current		I_{AS}	-58	
Avalanche Energy	L = 0.1mH, R_G=25Ω	E_{AS}	168.2	mJ
Power Dissipation	T_C = 25 °C	P_D	78	W
	T_C = 100 °C		31	
Operating Junction & Storage Temperature Range		T_j, T_{stg}	-55 to 150	°C

100% UIS testing in condition of VD=30V, L=0.1mH, VG=10V, IL=35A, Rated VDS=30V P-CH

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNIT
Junction-to-Case	$R_{\theta JC}$		1.6	°C / W
Junction-to-Ambient[3]	$R_{\theta JA}$		62.5	

[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_C = 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	-83			A
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = -10V, I_D = -25A		6	7.5	mΩ
		V_{GS} = -4.5V, I_D = -10A		9	12	
Forward Transconductance[1]	g_{fs}	V_{DS} = -5V, I_D = -25A		24		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = -15V, f = 1MHz		4294		pF
Output Capacitance	C_{oss}			634		
Reverse Transfer Capacitance	C_{rss}			566		
Gate Resistance	R_g	V_{GS} = 15mV, V_{DS} = 0V, f = 1MHz		3.0		Ω
Total Gate Charge[1,2]	Q_g	V_{DS} = -15V, V_{GS} = -10V, I_D = -25A		62.4		nC
Gate-Source Charge[1,2]	Q_{gs}			8.5		
Gate-Drain Charge[1,2]	Q_{gd}			13		
Turn-On Delay Time[1,2]	$t_{d(on)}$	V_{DS} = -15V, V_{GS} = -10V, I_D = -5A, R_g = 3Ω		10		nS
Rise Time[1,2]	t_r			15		
Turn-Off Delay Time[1,2]	$t_{d(off)}$			96		
Fall Time[1,2]	t_f			52		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_C = 25 °C)						
Continuous Current	I_S				-83	A
Pulsed Current[3]	I_{SM}				-160	
Forward Voltage[1]	V_{SD}	I_F = -24A, V_{GS} = 0V			-1.2	V
Reverse Recovery Time	t_{rr}	I_F = I_S, dI_F/dt = 100A / μS		52		nS
Reverse Recovery Charge	Q_{rr}			60		nC

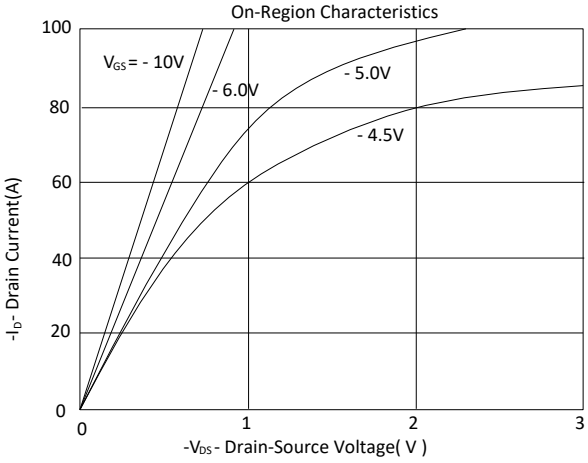
[1]Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

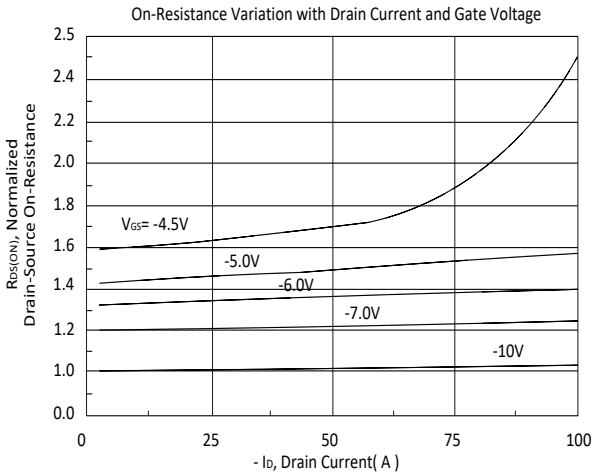
[2]Independent of operating temperature.

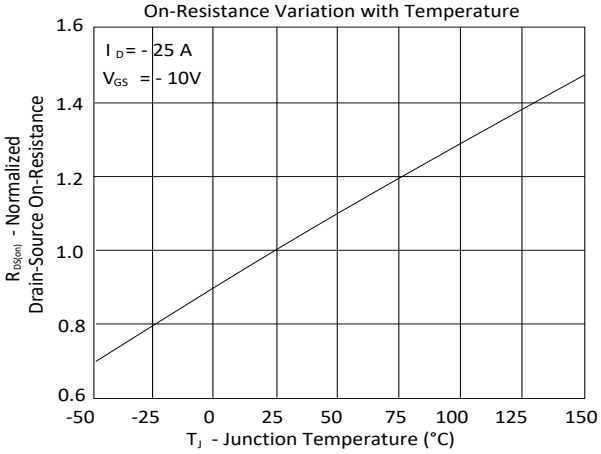
[3]Pulse width limited by maximum junction temperature.

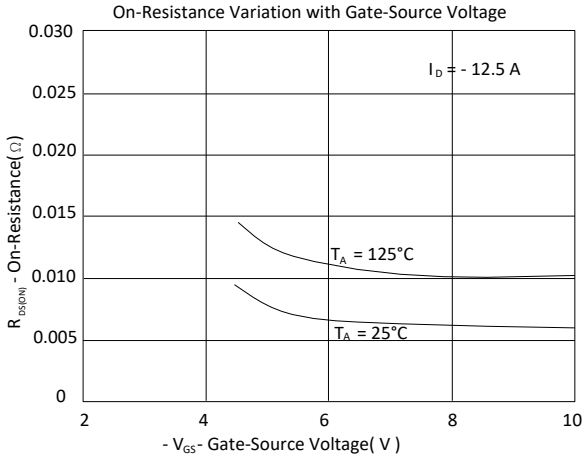
EMC will review datasheet by quarter, and update new version.

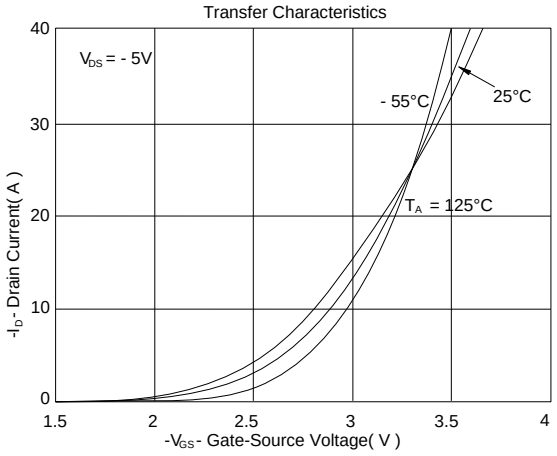
TYPICAL CHARACTERISTICS

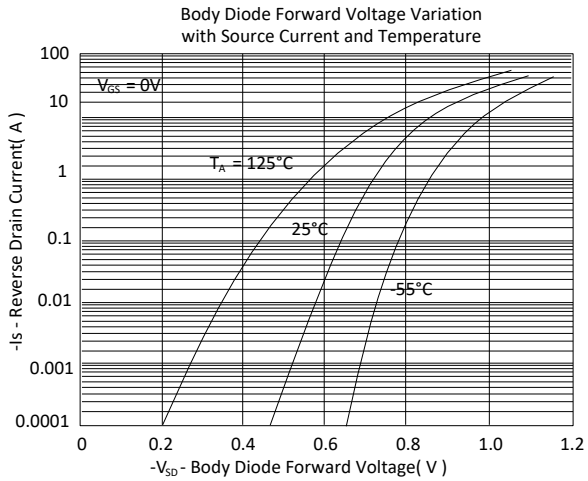




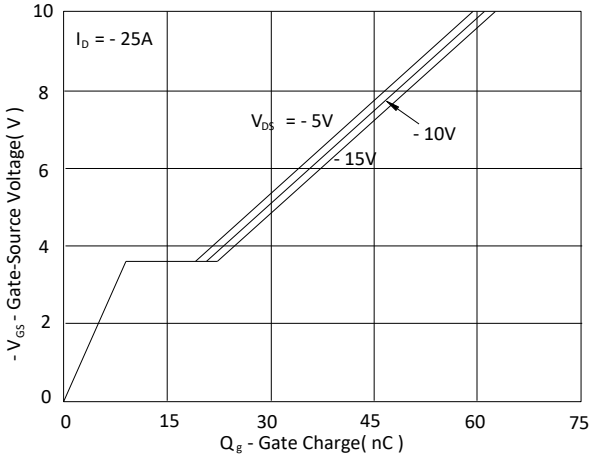




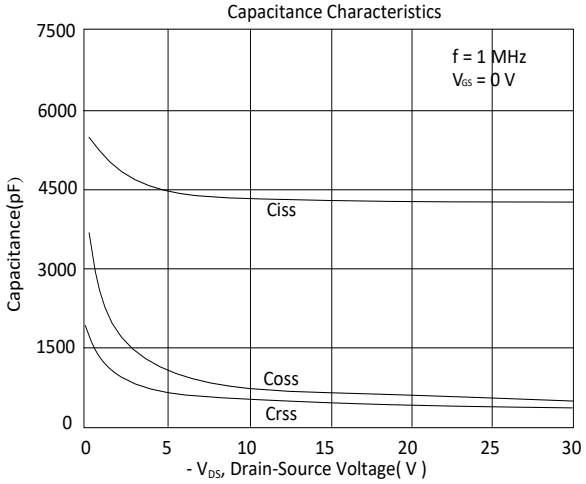




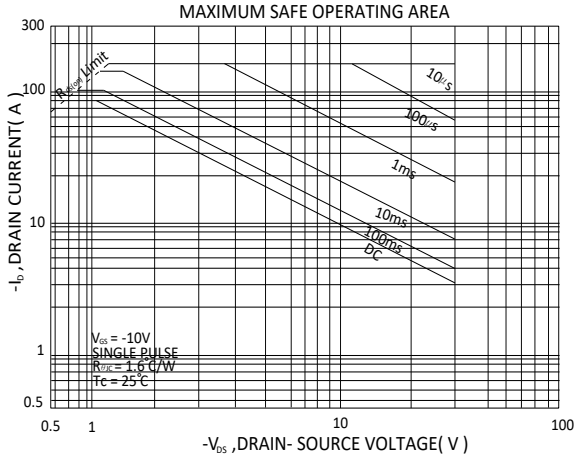
Gate Charge Characteristics



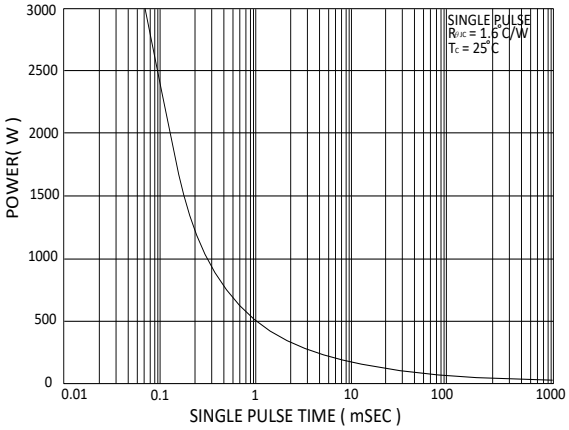
Capacitance Characteristics



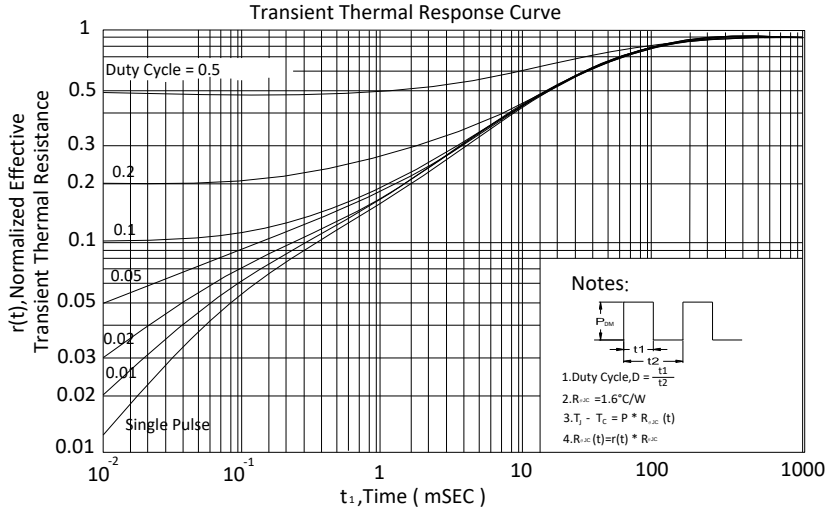
MAXIMUM SAFE OPERATING AREA



SINGLE PULSE MAXIMUM POWER DISSIPATION

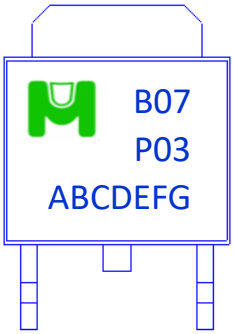


Transient Thermal Response Curve



Ordering & Marking Information:

Device Name: EMB07P03A for TO-252 [DPAK]



B07P03: Device Name

ABCDEFG: Date Code

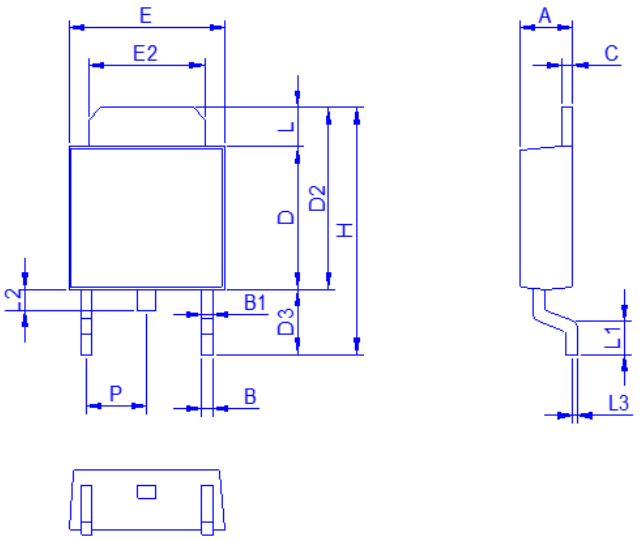
A: Assembly House

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)

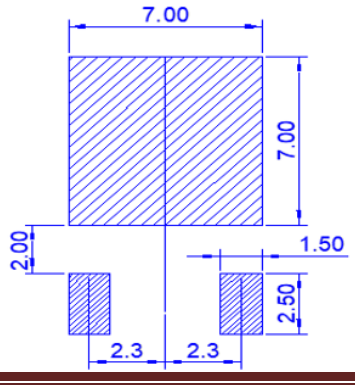
DEFG: Serial No.

Outline Drawing

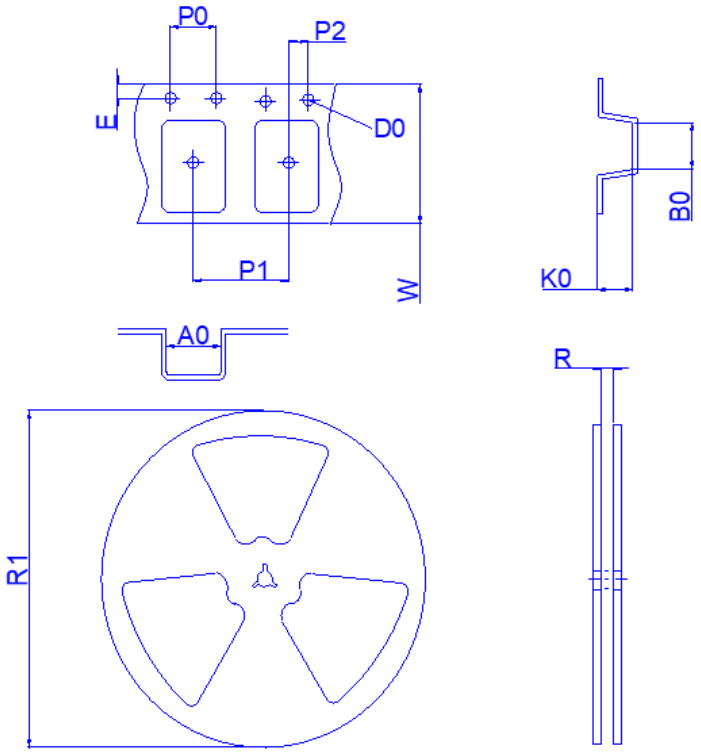


Dimension	A	B	B1	C	D	D2	D3	E	E2	H	L	L1	L2	L3	P
Min.	2.1	0.62	0.65	0.45	5.96	6.8	2.6	6.3	4.9	9.3	0.8	1.2	0.5	0	2.1
Typ.	2.25	0.76	0.9	0.67	6.1	7.15	2.8	6.5	5.2	9.9	1.1	1.65	0.8	0.1	2.25
Max.	2.4	0.9	1.15	0.89	6.24	7.5	3	6.7	5.5	10.5	1.4	2.1	1.1	0.2	2.4

Footprint



◆**Tape&Reel Information:2500pcs/Reel**



產品別	TO252-2
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.	6.9	10.5	1.55	1.75	2.7	4	8	2	16	17	330
±	1	1	0.2	0.1	0.2	0.2	0.1	0.1	0.3	2	2