

P-Channel Logic Level Enhancement Mode Field Effect Transistor

Product Summary:

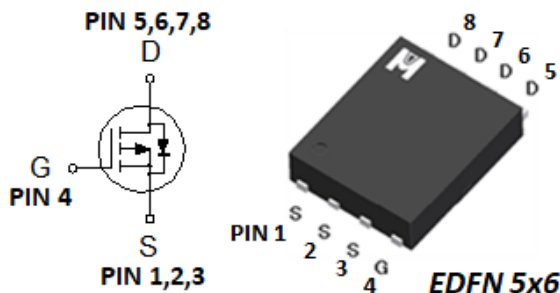
BV_{DSS}	-30V
$R_{DS(on)} (MAX.) @ V_{GS} = -10V$	$7.5m\Omega$
$R_{DS(on)} (MAX.) @ V_{GS} = -4.5V$	$11.5m\Omega$
$I_D @ T_C = 25^\circ C$	-65A

Single P Channel MOSFET

UIS, Rg 100% Tested

RoHS & Halogen Free & TSCA Compliant

ABSOLUTE MAXIMUM RATINGS ($T_C = 25^\circ C$ Unless Otherwise Noted)



PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNIT
Gate-Source Voltage		V_{GS}	± 25	V
Continuous Drain Current	$T_C = 25^\circ C$	I_D	-65	A
	$T_A = 25^\circ C (t \leq 10s)$		-23	
	$T_A = 25^\circ C (Steady-State)$		-14	
	$T_C = 100^\circ C$		-41	
Pulsed Drain Current ¹		I_{DM}	-208	mJ
Avalanche Current		I_{AS}	-50	
Avalanche Energy	$L = 0.1mH, I_{AS} = -50A, R_G = 25\Omega$	E_{AS}	125	
Repetitive Avalanche Energy ²	$L = 0.05mH$	E_{AR}	62.5	W
Power Dissipation	$T_C = 25^\circ C$	P_D	50	
	$T_C = 100^\circ C$		20	
Operating Junction & Storage Temperature Range		T_J, T_{stg}	-55 to 150	$^\circ C$

100% UIS testing in condition of $V_D = -30V, L = 0.1mH, V_G = -10V, I_L = -30A$, Rated $V_{DS} = -30V$ P-CH

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE		SYMBOL	TYPICAL	MAXIMUM	UNIT
Junction-to-Case		$R_{\theta JC}$		2.5	$^\circ C / W$
Junction-to-Ambient ³	$t \leq 10s$	$R_{\theta JA}$		20	
Junction-to-Ambient ³	Steady-State	$R_{\theta JA}$		50	



¹Pulse width limited by maximum junction temperature.

²Duty cycle < 1%

³The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz.

Copper, in a still air environment with $T_A = 25^\circ\text{C}$.

⁴Guarantee by Engineering test

ELECTRICAL CHARACTERISTICS ($T_J = 25\text{ }^{\circ}\text{C}$, Unless Otherwise Noted)

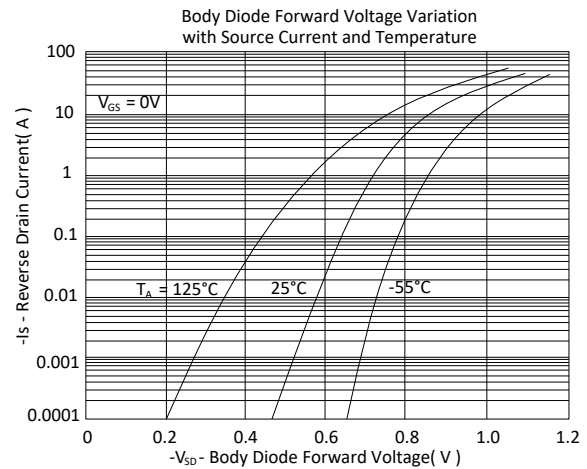
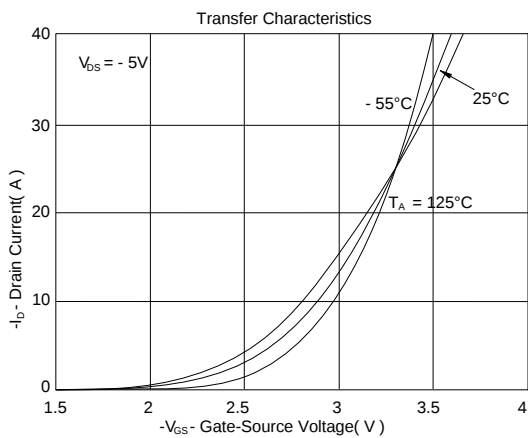
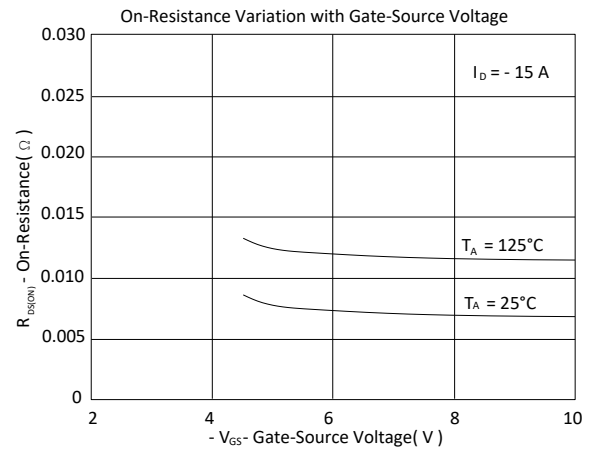
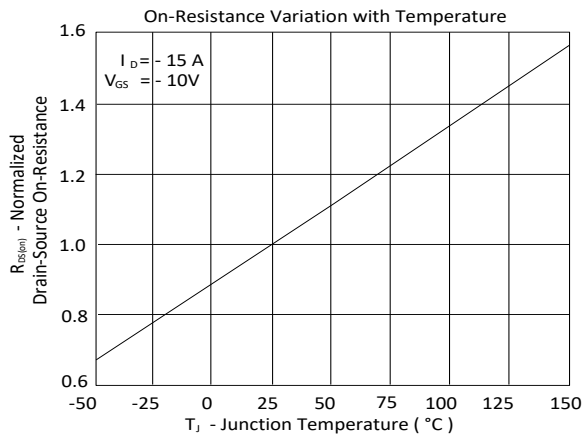
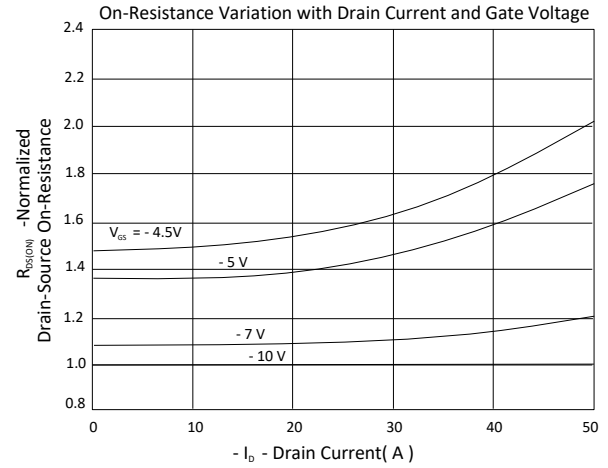
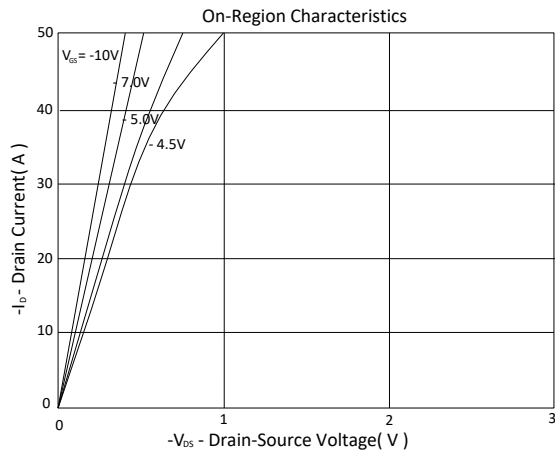
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-30			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1	-1.5	-3.0	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -24V, V_{GS} = 0V$			-1	μA
		$V_{DS} = -20V, V_{GS} = 0V, T_J = 125\text{ }^{\circ}C$			-10	
On-State Drain Current ¹	$I_{D(ON)}$	$V_{DS} = -5V, V_{GS} = -10V$	-65			A
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = -10V, I_D = -20A$		6.6	7.5	m Ω
		$V_{GS} = -4.5V, I_D = -15A$		8.2	11.5	
Forward Transconductance ¹	g_{fs}	$V_{DS} = -5V, I_D = -15A$		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	$V_{DS} = -15V, V_{GS} = -10V, I_D = -20A$		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}	$t_{d(on)}$	$V_{DS} = -15V, I_D = -5A, V_{GS} = -10V, R_G = 3\Omega$		18		nS
Rise Time ^{1,2}	t_r			26		
Turn-Off Delay Time ^{1,2}	$t_{d(off)}$			22		
Fall Time ^{1,2}	t_f			75		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS						
Continuous Current	I_S				-65	A
Pulsed Current ³	I_{SM}				-208	
Forward Voltage ¹	V_{SD}	$I_F = -20A, V_{GS} = 0V$			-1.2	V
Reverse Recovery Time	t_{rr}	$I_F = I_S, dI_F/dt = 100A / \mu S$		55		nS
Reverse Recovery Charge	Q_{rr}			62		nC

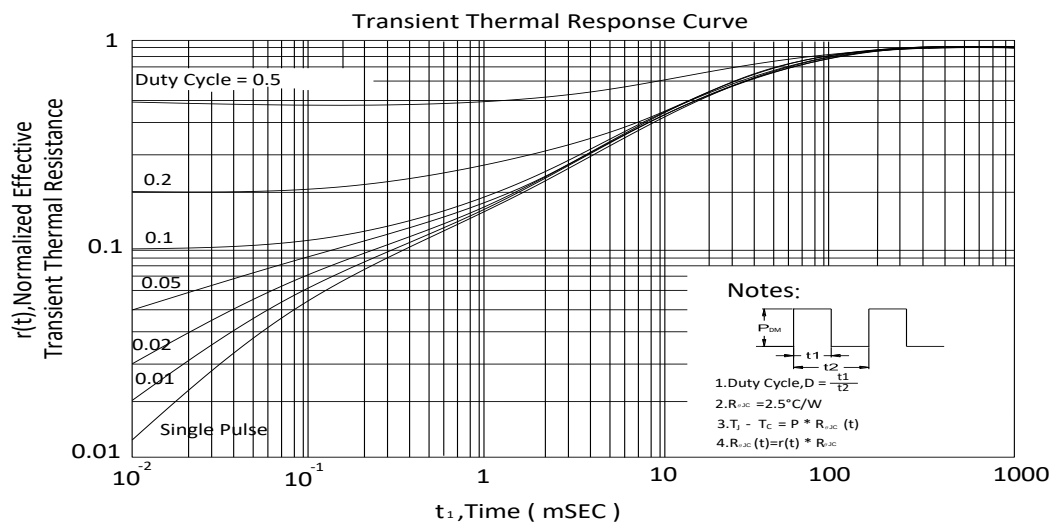
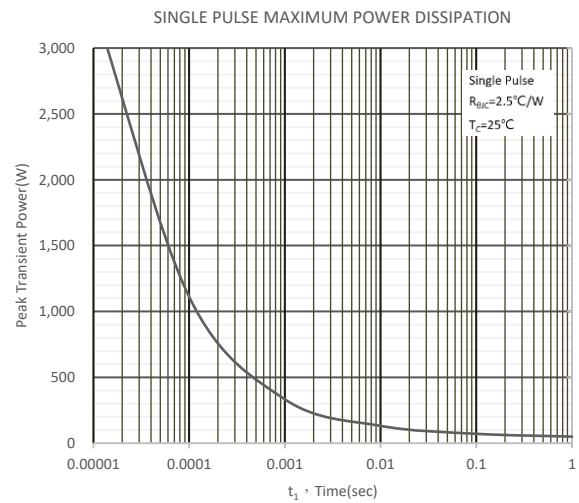
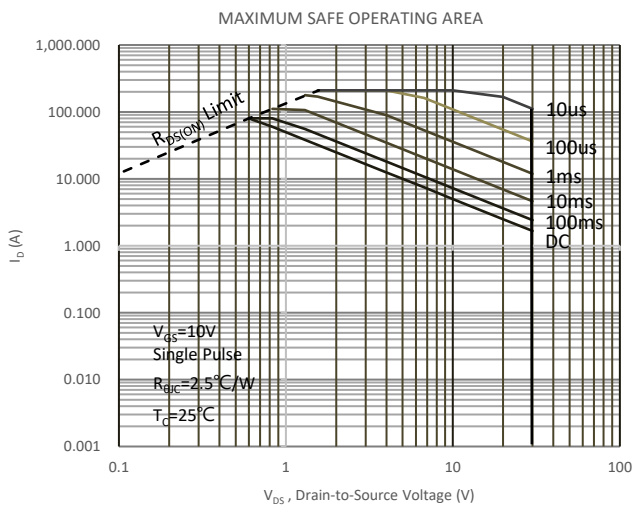
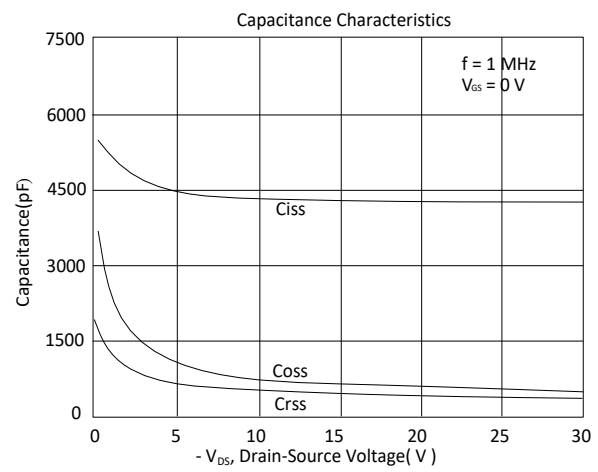
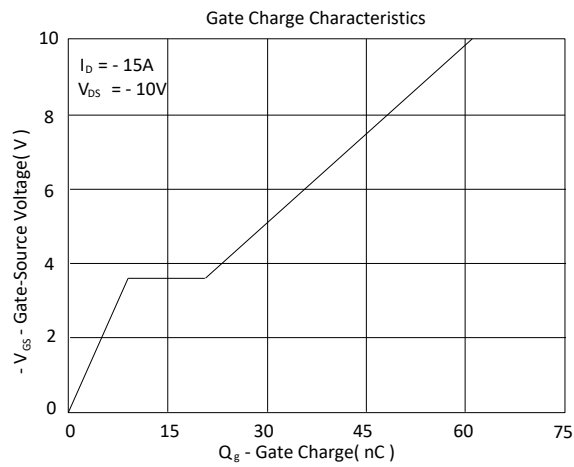
¹Pulse test : Pulse Width $\leq 300 \mu\text{sec}$, Duty Cycle $\leq 2\%$.

²Independent of operating temperature.

³Pulse width limited by maximum junction temperature.

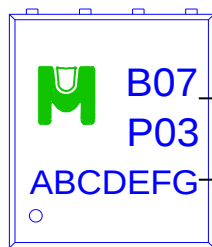
EMC will review datasheet by quarter, and update new version.





Ordering & Marking Information:

Device Name: EMB07P03H for EDFN 5 x 6



B07P03: Device Name

ABCDEFGG: Date Code

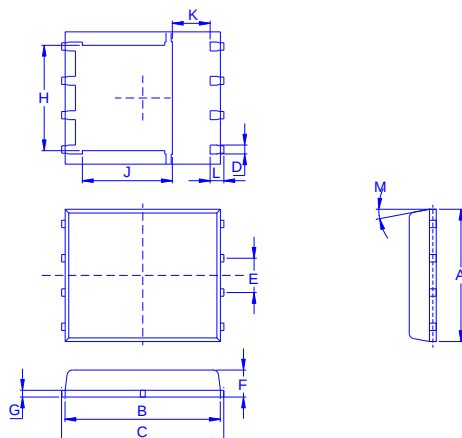
A: Assembly House

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.

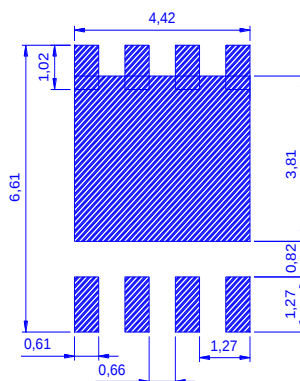
Outline Drawing



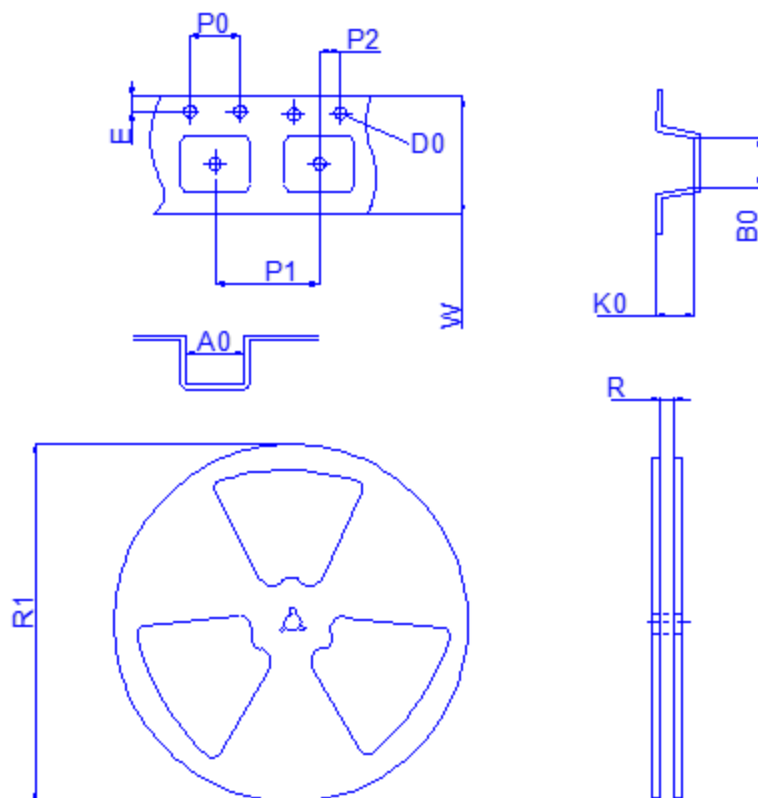
Dimension in mm

Dimension	A	B	C	D	E	F	G	H	J	K	L	M
Min	4.8	5.55	5.9	0.3	1.17	0.85	0.15	3.61	3.18	1	0.38	0°
Typ.	4.9	5.7	6	0.4	1.27	0.95	0.2	3.87	3.44	1.2	0.4	
Max	5.4	5.85	6.15	0.51	1.37	1.17	0.34	4.31	3.78	1.39	0.71	12°

Footprint



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



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
Typ.	6.4	5.3	1.5	1.8	1.6	4	8	2	12	12.4
±	0.2	0.2	0.1	0.1	0.6	0.1	0.1	0.1	0.3	2