

P-Channel Logic Level Enhancement Mode Field Effect Transistor

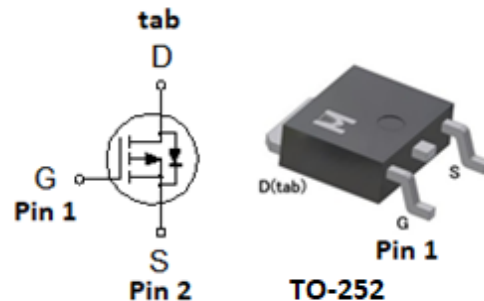
Product Summary:

BV_{DSS}	-30V
$R_{DS(on)} (MAX.) @V_{GS}=-10V$	9m Ω
$R_{DS(on)} (MAX.) @V_{GS}=-4.5V$	17m Ω
$I_D @T_C=25^{\circ}C$	-60A

Single P Channel MOSFET

UIS, Rg 100% Tested

Pb-Free Lead Plating & Halogen Free



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	-60	A
	$T_C = 100^{\circ}C$		-38	
Pulsed Drain Current ¹		I_{DM}	-192	
Avalanche Current		I_{AS}	-20	
Avalanche Energy	L = 0.1mH	E_{AS}	20	mJ
Power Dissipation	$T_C = 25^{\circ}C$	P_D	50	W
	$T_C = 100^{\circ}C$		20	
Operating Junction & Storage Temperature Range		T_J, T_{stg}	-55 to 150	$^{\circ}C$

100% UIS testing in condition of $V_D=-15V$, $L=0.1mH$, $V_G=-10V$, $I_L=-15A$, 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	$R_{\theta JA}$		75	

¹Pulse width limited by maximum junction temperature.

²Duty cycle $\leq 1\%$

³75 $^{\circ}C / W$ when mounted on a 1 in² pad of 2 oz copper.

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

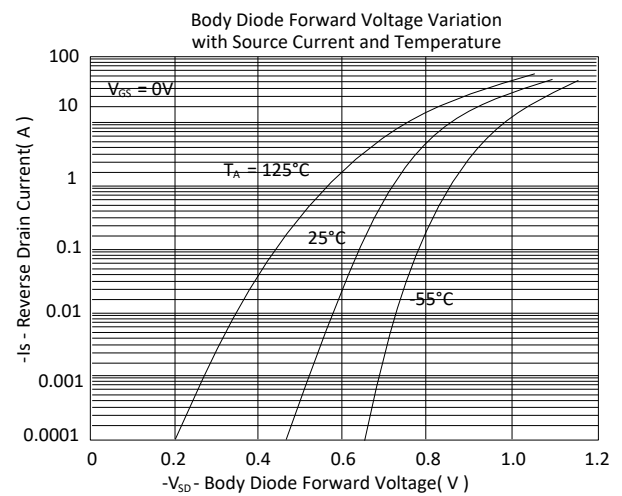
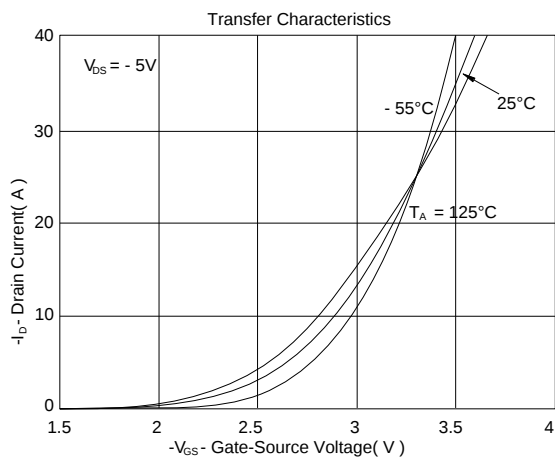
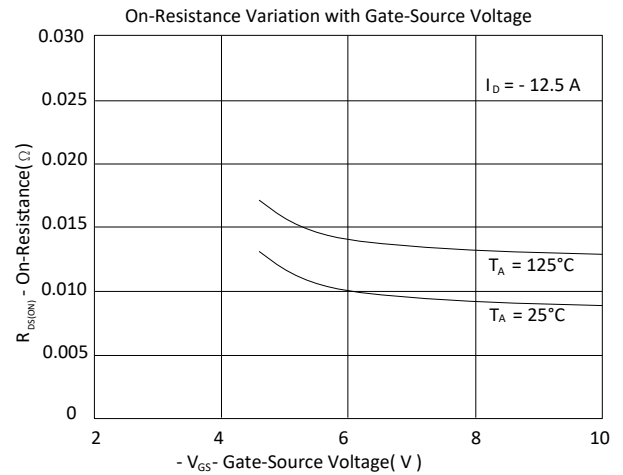
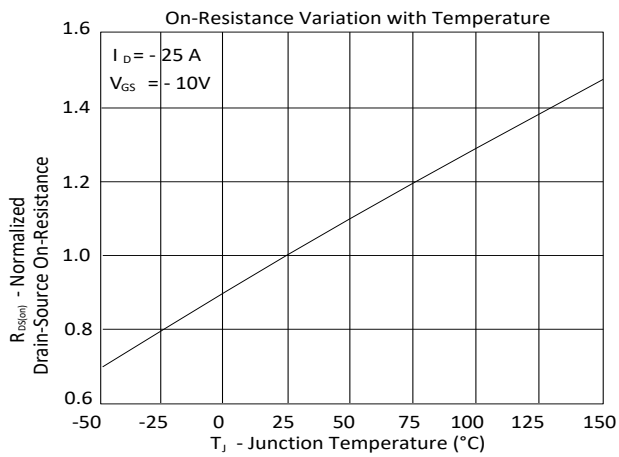
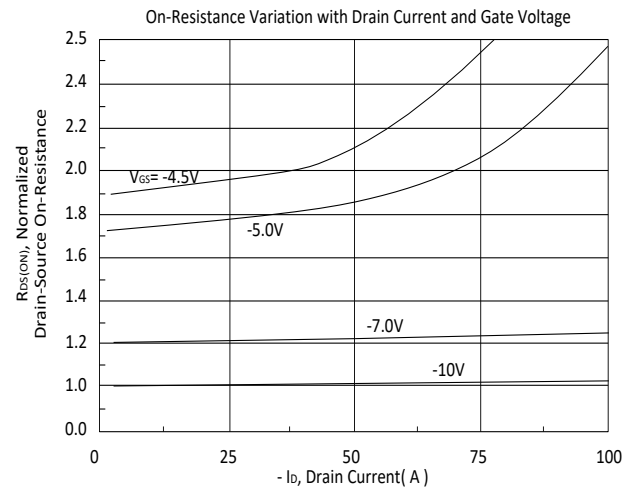
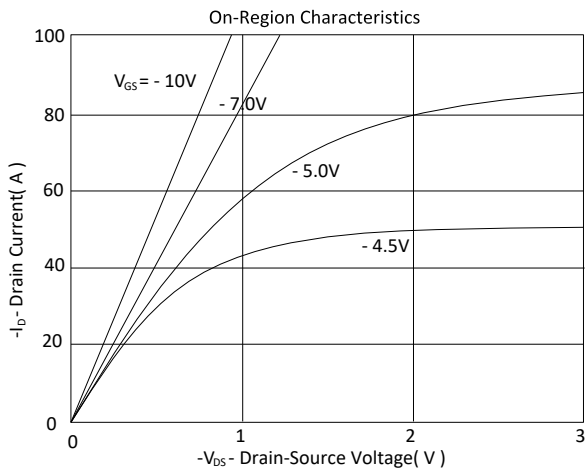
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-30			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1	-1.5	-3	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			± 100	nA
		$V_{DS} = 0V, V_{GS} = \pm 25V$			± 500	
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -24V, V_{GS} = 0V$			-1	μA
		$V_{DS} = -20V, V_{GS} = 0V, T_J = 125\text{ }^{\circ}C$			-10	
On-State Drain Current ¹	$I_{D(ON)}$	$V_{DS} = -5V, V_{GS} = -10V$	-60			A
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = -10V, I_D = -25A$		8.2	9	m Ω
		$V_{GS} = -4.5V, I_D = -10A$		13.5	17	
Forward Transconductance ¹	g_{fs}	$V_{DS} = -5V, I_D = -25A$		24		S
DYNAMIC						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = -15V, f = 1MHz$		3067		pF
Output Capacitance	C_{oss}			453		
Reverse Transfer Capacitance	C_{rss}			398		
Gate Resistance	R_g	$V_{GS} = 15mV, V_{DS} = 0V, f = 1MHz$		3.0		Ω
Total Gate Charge ^{1,2}	Q_g	$V_{DS} = -15V, V_{GS} = -10V, I_D = -25A$		52		nC
Gate-Source Charge ^{1,2}	Q_{gs}			6.5		
Gate-Drain Charge ^{1,2}	Q_{gd}			10		
Turn-On Delay Time ^{1,2}	$t_{d(on)}$	$V_{DS} = -15V, I_D = -1A, V_{GS} = -10V, R_{GS} = 2.7\Omega$		20		nS
Rise Time ^{1,2}	t_r			18		
Turn-Off Delay Time ^{1,2}	$t_{d(off)}$			55		
Fall Time ^{1,2}	t_f			10		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS						
Continuous Current	I_S				-60	A
Pulsed Current ³	I_{SM}				-192	
Forward Voltage ¹	V_{SD}	$I_F = -24A, V_{GS} = 0V$			-1.2	V
Reverse Recovery Time	t_{rr}	$I_F = I_S, dI_F/dt = 100A / \mu S$		47		nS
Reverse Recovery Charge	Q_{rr}			43		nC

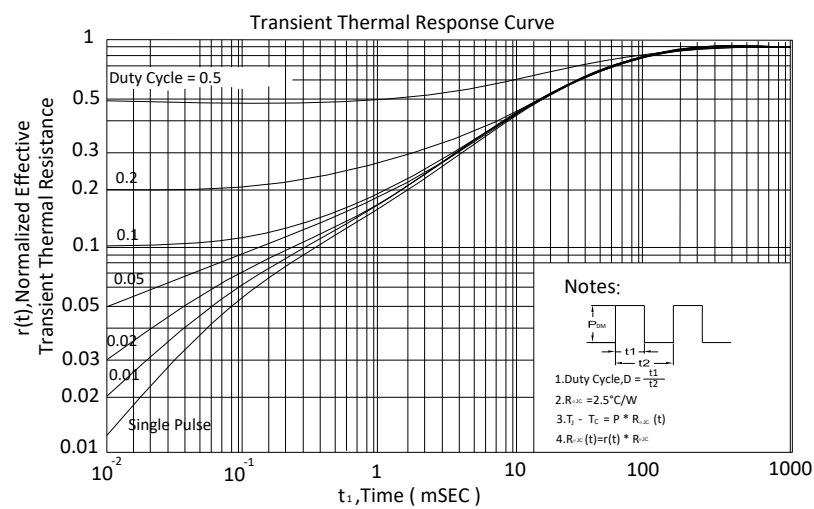
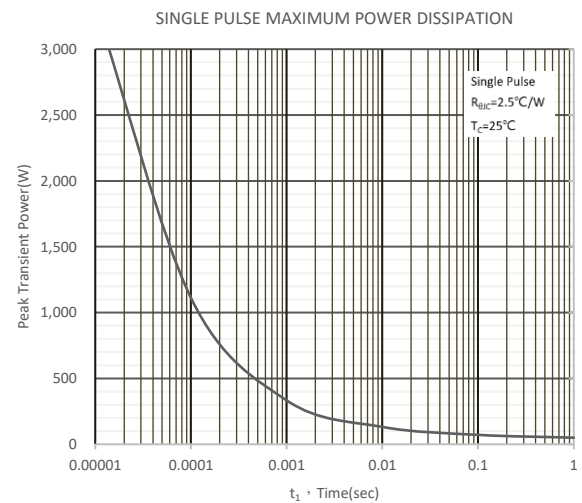
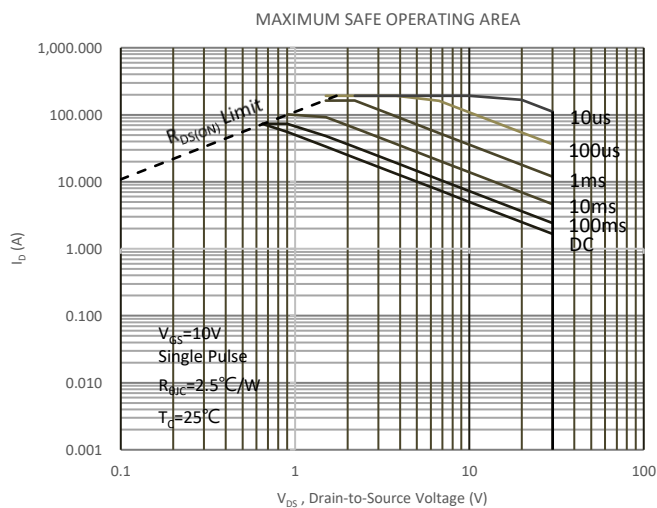
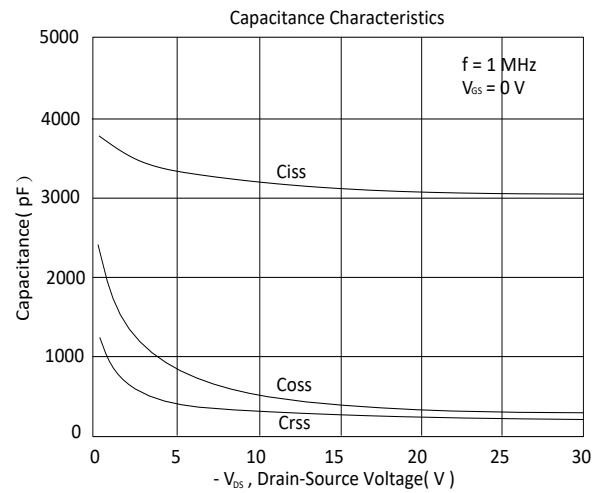
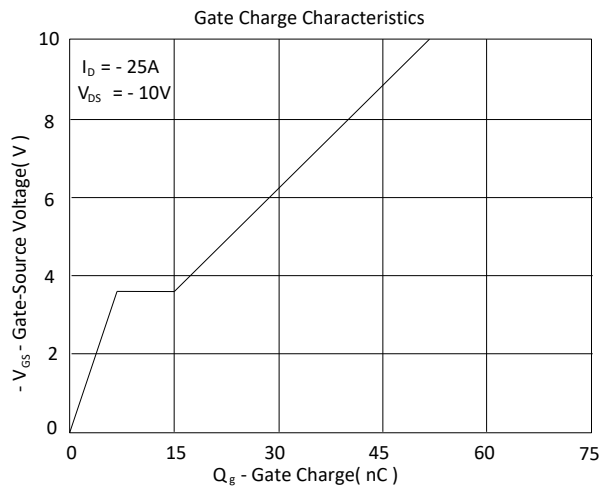
¹Pulse test : Pulse Width $\leq 300 \mu\text{sec}$, Duty Cycle $\leq 2\%$.

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: EMB09P03A for DPAK (TO-252)



B09P03: Device Name

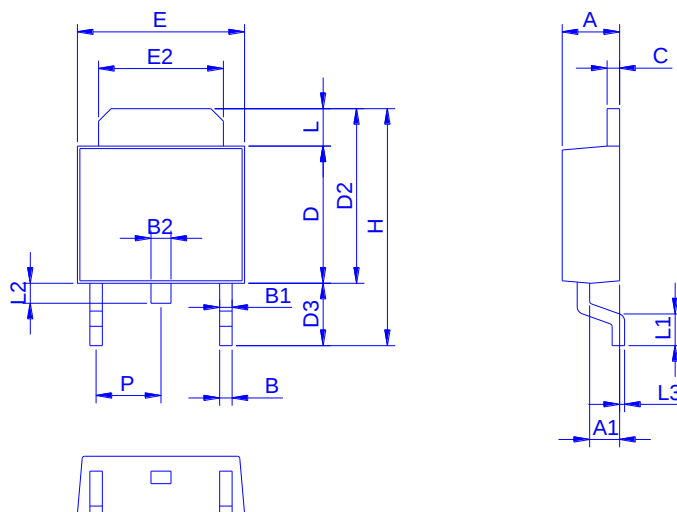
ABCDEFGH: Date Code

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)

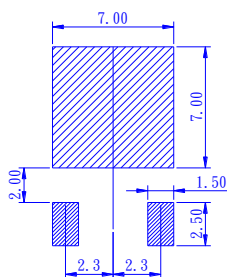
Outline Drawing



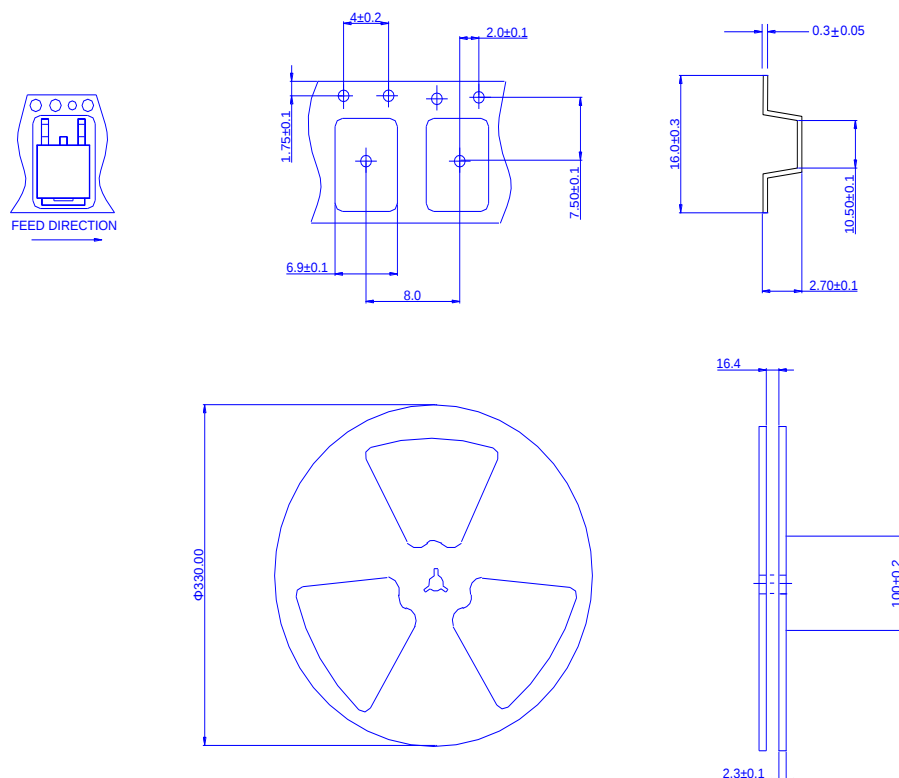
Dimension in mm

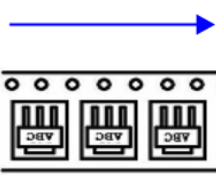
Dimension	A	A1	B	B1	B2	C	D	D2	D3	E	E2	H	L	L1	L2	L3	P
Min.	2.100	2.300	2.500	2.100	2.300	2.500	2.100	2.300	2.500	2.100	2.300	2.500	2.100	2.300	2.500	2.100	2.300
Typ.	0.950	1.125	1.300	0.950	1.125	1.300	0.950	1.125	1.300	0.950	1.125	1.300	0.950	1.125	1.300	0.950	1.125
Max.	0.300	0.575	0.850	0.300	0.575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