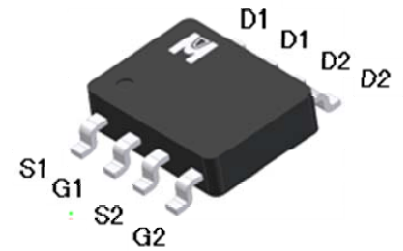
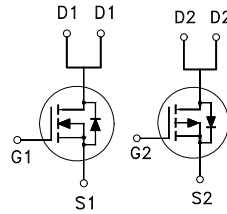


N & P-Channel Logic Level Enhancement Mode Field Effect Transistor

Product Summary:

	N-CH	P-CH
$BV_{DSS}$	40V	-40V
$R_{DS(on) (MAX.)}$	22m $\Omega$	42m $\Omega$
$I_D$	7.5A	-6A



Pb-Free Lead Plating & Halogen Free



ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$  Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS		UNIT
Gate-Source Voltage		$V_{GS}$	N-CH	P-CH	V
			$\pm 20$	$\pm 20$	
Continuous Drain Current	$T_A = 25^\circ\text{C}$	$I_D$	7.5	-6	A
	$T_A = 70^\circ\text{C}$		6	-5	
Pulsed Drain Current <sup>1</sup>		$I_{DM}$	30	-24	
Power Dissipation	$T_A = 25^\circ\text{C}$	$P_D$	2		W
	$T_A = 70^\circ\text{C}$		1.3		
Operating Junction & Storage Temperature Range		$T_{j}, T_{stg}$	-55 to 150		$^\circ\text{C}$

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNIT
Junction-to-Case	$R_{\theta JC}$		25	$^\circ\text{C} / \text{W}$
Junction-to-Ambient <sup>3</sup>	$R_{\theta JA}$		62.5	

<sup>1</sup>Pulse width limited by maximum junction temperature.

<sup>2</sup>Duty cycle  $\leq 1\%$

<sup>3</sup>62.5 $^\circ\text{C} / \text{W}$  when mounted on a 1 in<sup>2</sup> pad of 2 oz copper.



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

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
<b>STATIC</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$ $V_{GS} = 0V, I_D = -250\mu A$	N-CH	40		V
			P-CH	-40		
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$ $V_{DS} = V_{GS}, I_D = -250\mu A$	N-CH	1.5	2.0	3.0
			P-CH	-1.5	-2.0	-3.0
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0V, V_{GS} = \pm 20V$ $V_{DS} = 0V, V_{GS} = \pm 20V$	N-CH			$\pm 100$
			P-CH			$\pm 100$
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 32V, V_{GS} = 0V$ $V_{DS} = -32V, V_{GS} = 0V$	N-CH			1
			P-CH			-1
		$V_{DS} = 30V, V_{GS} = 0V, T_J = 125\text{ }^\circ\text{C}$ $V_{DS} = -30V, V_{GS} = 0V, T_J = 125\text{ }^\circ\text{C}$	N-CH			25
			P-CH			-25
On-State Drain Current <sup>1</sup>	$I_{D(ON)}$	$V_{DS} = 5V, V_{GS} = 10V$ $V_{DS} = -5V, V_{GS} = -10V$	N-CH	7.5		A
			P-CH	-6		
Drain-Source On-State Resistance <sup>1</sup>	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 7.5A$ $V_{GS} = -10V, I_D = -6A$	N-CH		20	22
			P-CH		37	42
		$V_{GS} = 4.5V, I_D = 5A$ $V_{GS} = -4.5V, I_D = -4A$	N-CH		33	40
			P-CH		70	85
Forward Transconductance <sup>1</sup>	$g_{fs}$	$V_{DS} = 5V, I_D = 7.5A$ $V_{DS} = -5V, I_D = -6A$	N-CH		20	S
			P-CH		10	
<b>DYNAMIC</b>						
Input Capacitance	$C_{iss}$	N-CH $V_{GS} = 0V, V_{DS} = 20V, f = 1MHz$ P-CH $V_{GS} = 0V, V_{DS} = -20V, f = 1MHz$	N-CH		536	pF
Output Capacitance	$C_{oss}$		P-CH		810	
			N-CH		83	
Reverse Transfer Capacitance	$C_{rss}$		P-CH		94	
			N-CH		66	
			P-CH		72	



Total Gate Charge <sup>1,2</sup>	$Q_g$	N-CH $V_{DS} = 20V, V_{GS} = 10V,$ $I_D = 7.5A$ P-CH $V_{DS} = -20V, V_{GS} = -10V,$ $I_D = -6A$	N-CH		14.5		nC	
Gate-Source Charge <sup>1,2</sup>	$Q_{gs}$		P-CH		15			
Gate-Drain Charge <sup>1,2</sup>	$Q_{gd}$		N-CH		2.1			
			P-CH		2.6			
Turn-On Delay Time <sup>1,2</sup>	$t_{d(on)}$		N-CH		5			nS
			P-CH		12			
Rise Time <sup>1,2</sup>	$t_r$	$I_D = 1A, V_{GS} = 10V, R_{GS} = 6\Omega$	N-CH		10			
			P-CH		15			
Turn-Off Delay Time <sup>1,2</sup>	$t_{d(off)}$		P-CH $V_{DS} = -10V,$	N-CH		15		
				P-CH		25		
Fall Time <sup>1,2</sup>	$t_f$	$I_D = -1A, V_{GS} = -10V, R_{GS} = 6\Omega$	N-CH		12			
			P-CH		15			
<b>SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (<math>T_c = 25\text{ }^\circ\text{C}</math>)</b>								
Continuous Current	$I_S$		N-CH			7.5	A	
			P-CH			-6		
Pulsed Current <sup>3</sup>	$I_{SM}$		N-CH			20		
			P-CH			-20		
Forward Voltage <sup>1</sup>	$V_{SD}$		$I_F = I_S, V_{GS} = 0V$	N-CH			1.3	V
				P-CH			-1.3	

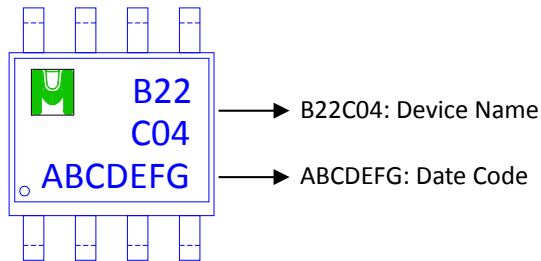
<sup>1</sup>Pulse test : Pulse Width  $\leq 300\ \mu\text{sec}$ , Duty Cycle  $\leq 2\%$ .

<sup>2</sup>Independent of operating temperature.

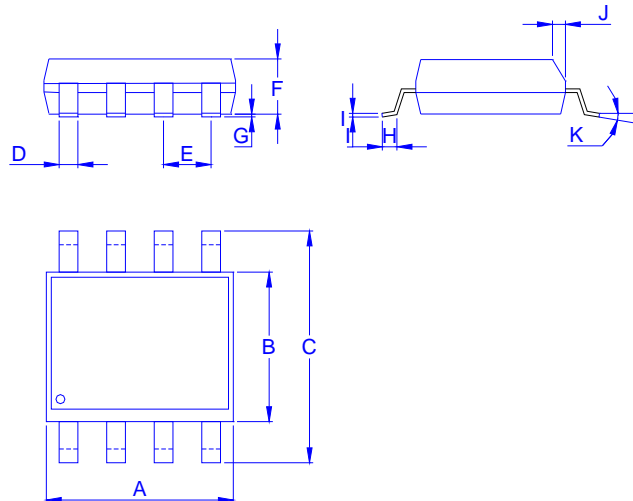
<sup>3</sup>Pulse width limited by maximum junction temperature.

Ordering & Marking Information:

Device Name: EMB22C04G for SOP-8



Outline Drawing

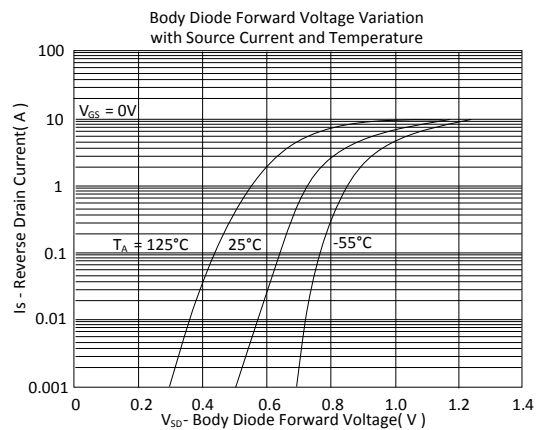
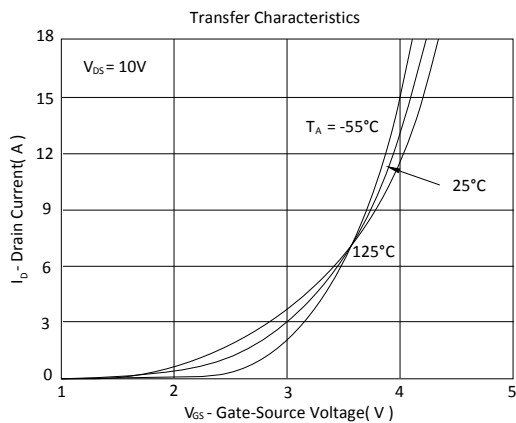
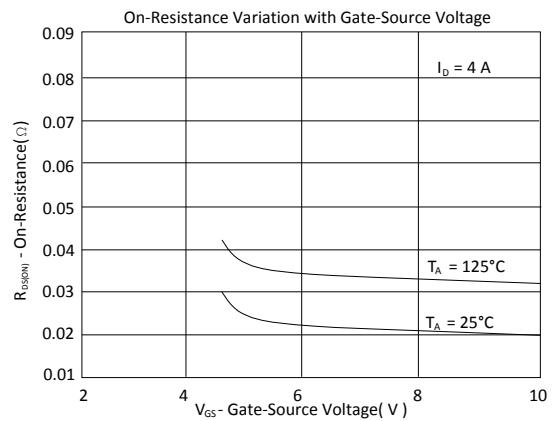
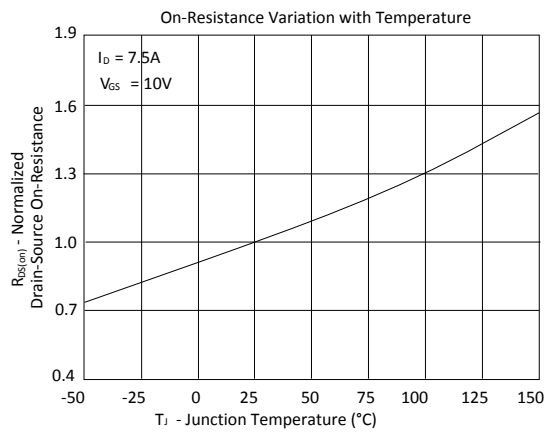
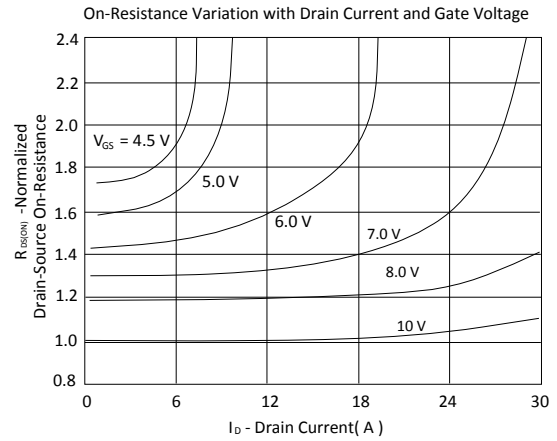
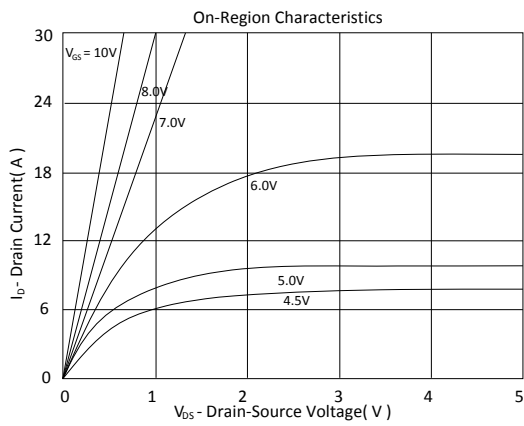


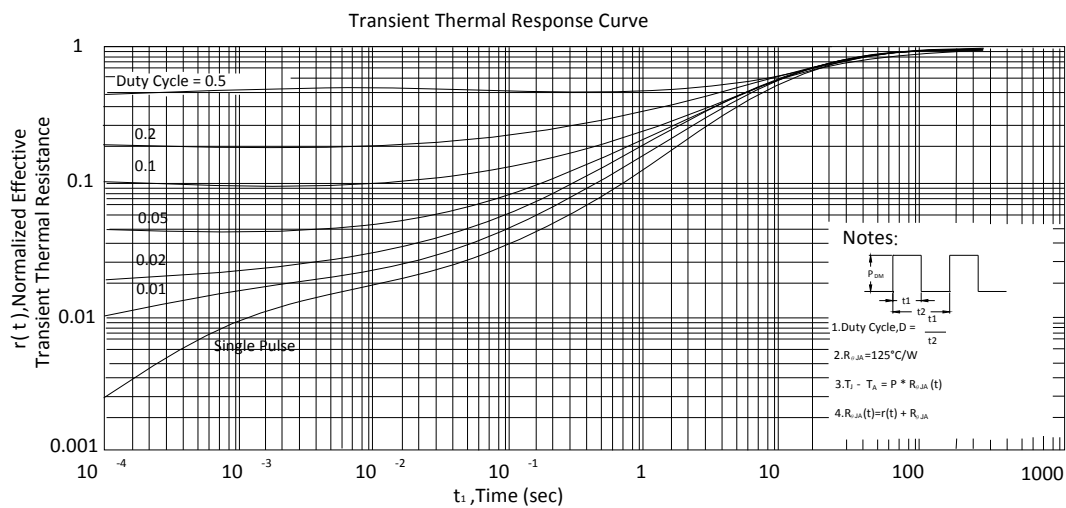
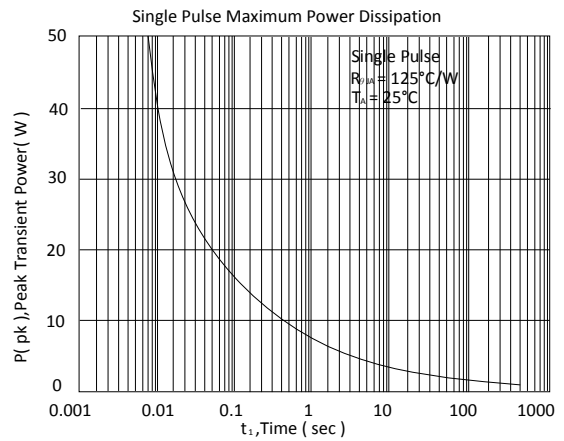
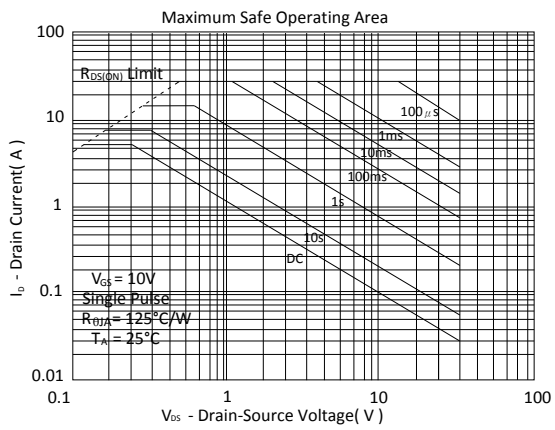
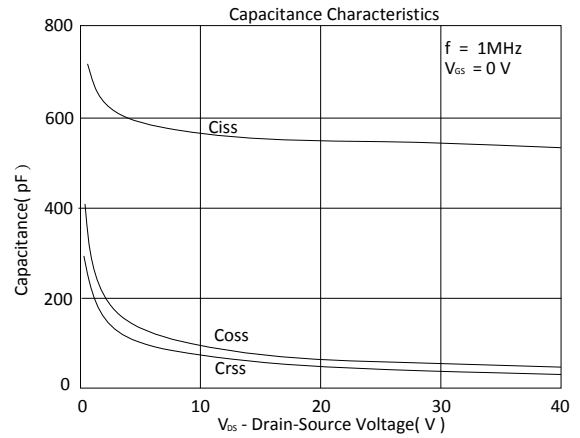
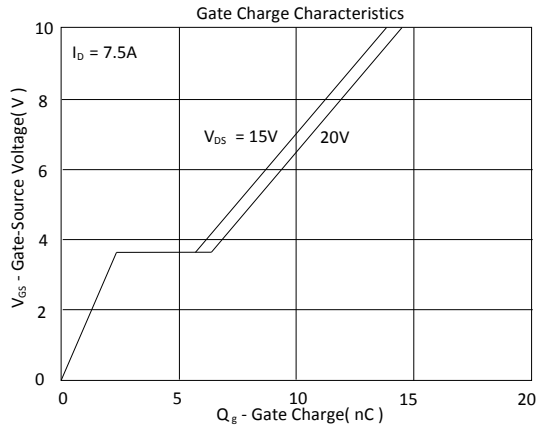
Dimension in mm

Dimension	A	B	C	D	E	F	G	H	I	J	K
Min.	4.70	3.70	5.80	0.33		1.20	0.08	0.40	0.19	0.25	0°
Typ.					1.27						
Max.	5.10	4.10	6.20	0.51		1.62	0.28	0.83	0.26	0.50	8°



N-Channel







P-Channel

