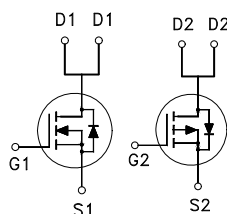
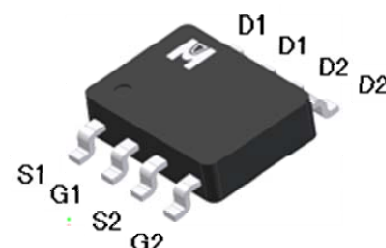


N & P-Channel Logic Level Enhancement Mode Field Effect Transistor

Product Summary:

	N-CH	P-CH
BV_{DSS}	100V	-100V
$R_{DS(on)} (MAX.)$	150m Ω	250m Ω
I_D	3A	-2.5A



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
				±20	±20	
Continuous Drain Current	T _A = 25 °C		I _D	3	-2.5	A
	T _A = 100 °C			2.1	-1.8	
Pulsed Drain Current ¹			I _{DM}	12	-10	
Power Dissipation	T _A = 25 °C		P _D	2		W
	T _A = 100 °C			0.8		
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	$R_{\theta JC}$		25	$^\circ\text{C} / \text{W}$
Junction-to-Ambient ³	$R_{\theta JA}$		62.5	

¹Pulse width limited by maximum junction temperature.

²Duty cycle $\leq 1\%$

³62.5 $^\circ\text{C} / \text{W}$ when mounted on a 1 in² 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		
STATIC							
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	N-CH	100			V
		$V_{GS} = 0V, I_D = -250\mu A$	P-CH	-100			
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	N-CH	1.0	2.0	3.0	
		$V_{DS} = V_{GS}, I_D = -250\mu A$	P-CH	-1.0	-1.5	-3.0	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$	N-CH			± 100	nA
		$V_{DS} = 0V, V_{GS} = \pm 20V$	P-CH			± 100	
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 80V, V_{GS} = 0V$	N-CH			1	μA
		$V_{DS} = -80V, V_{GS} = 0V$	P-CH			-1	
		$V_{DS} = 70V, V_{GS} = 0V, T_J = 125\text{ }^{\circ}C$	N-CH			25	
		$V_{DS} = -70V, V_{GS} = 0V, T_J = 125\text{ }^{\circ}C$	P-CH			-25	
On-State Drain Current ¹	$I_{D(ON)}$	$V_{DS} = 5V, V_{GS} = 10V$	N-CH	3			A
		$V_{DS} = -5V, V_{GS} = -10V$	P-CH	-2.5			
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 2A$	N-CH		125	150	mΩ
		$V_{GS} = -10V, I_D = -1.5A$	P-CH		210	250	
		$V_{GS} = 5V, I_D = 1.5A$	N-CH		168	225	
		$V_{GS} = -5V, I_D = -1A$	P-CH		280	375	
Forward Transconductance ¹	g_{fs}	$V_{DS} = 5V, I_D = 2A$	N-CH		8		S
		$V_{DS} = -5V, I_D = -1.5A$	P-CH		7		
DYNAMIC							
Input Capacitance	C_{iss}	N-CH	N-CH		1030		pF
		$V_{GS} = 0V, V_{DS} = 20V, f = 1MHz$	P-CH		2018		
Output Capacitance	C_{oss}	P-CH	N-CH		50		
		$V_{GS} = 0V, V_{DS} = -20V, f = 1MHz$	P-CH		82		
Reverse Transfer Capacitance	C_{rss}		N-CH		42		
			P-CH		61		

Total Gate Charge ^{1,2}	Q _g	N-CH V _{DS} = 80V, V _{GS} = 10V, I _D = 2A P-CH V _{DS} = -80V, V _{GS} = -10V, I _D = -1.5A	N-CH		23		nC
Gate-Source Charge ^{1,2}	Q _{gs}		P-CH		31		
Gate-Drain Charge ^{1,2}	Q _{gd}		N-CH		2.3		
			P-CH		6.3		
			N-CH		6.1		
			P-CH		4.5		
Turn-On Delay Time ^{1,2}	t _{d(on)}	N-CH V _{DS} = 50V, I _D = 1A, V _{GS} = 10V, R _{GS} = 6Ω	N-CH		12		nS
			P-CH		12		
Rise Time ^{1,2}	t _r		N-CH		20		
			P-CH		55		
Turn-Off Delay Time ^{1,2}	t _{d(off)}		N-CH		25		
			P-CH		40		
Fall Time ^{1,2}	t _f	I _D = -1A, V _{GS} = -10V, R _{GS} = 6Ω	N-CH		25		
			P-CH		40		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T _C = 25 °C)							
Continuous Current	I _S		N-CH			3	A
			P-CH			-2.5	
Pulsed Current ³	I _{SM}		N-CH			12	
			P-CH			-10	
Forward Voltage ¹	V _{SD}	I _F = I _S , V _{GS} = 0V	N-CH			1.3	V
			P-CH			-1.3	

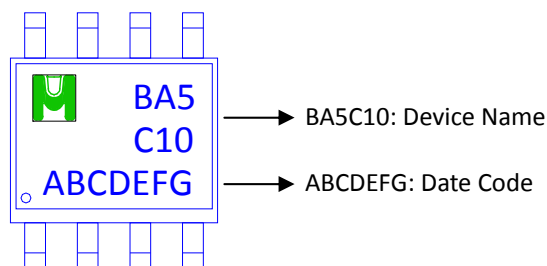
¹Pulse test : Pulse Width $\leq 300 \mu sec$, Duty Cycle $\leq 2\%$.

²Independent of operating temperature.

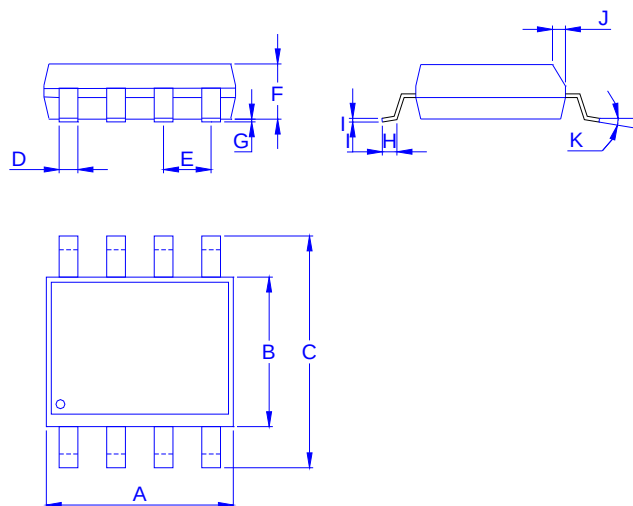
³Pulse width limited by maximum junction temperature.

Ordering & Marking Information:

Device Name: EMBA5C10G for SOP-8



Outline Drawing

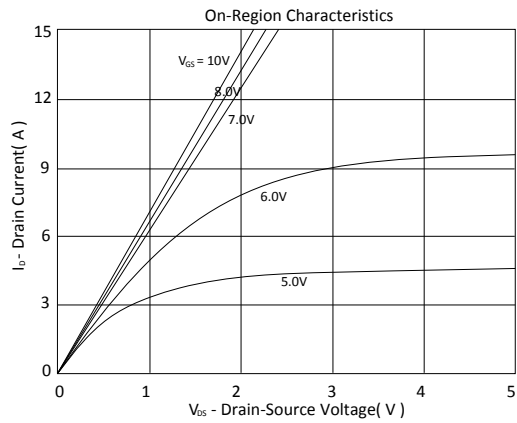
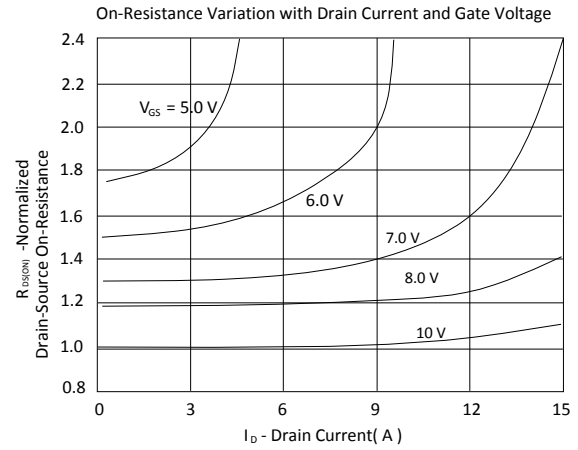
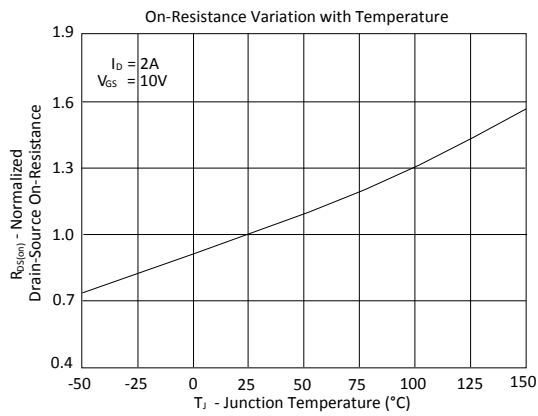
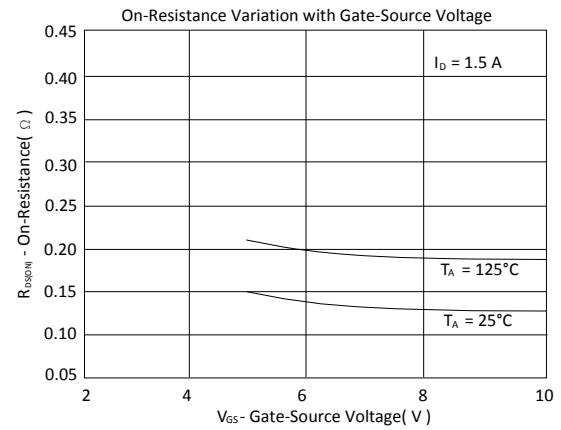
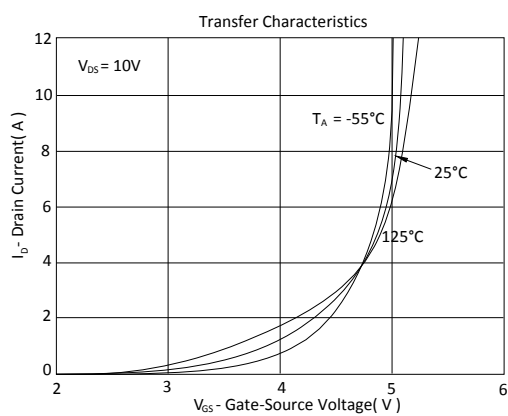
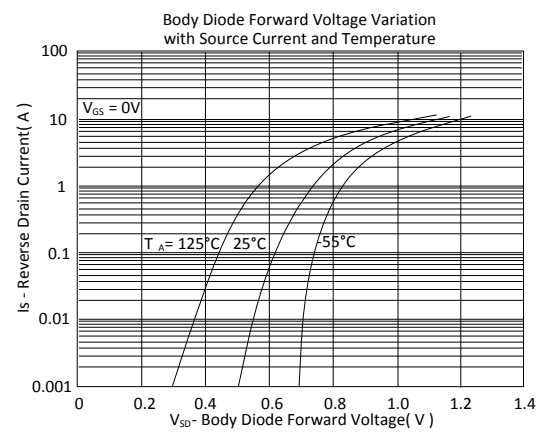


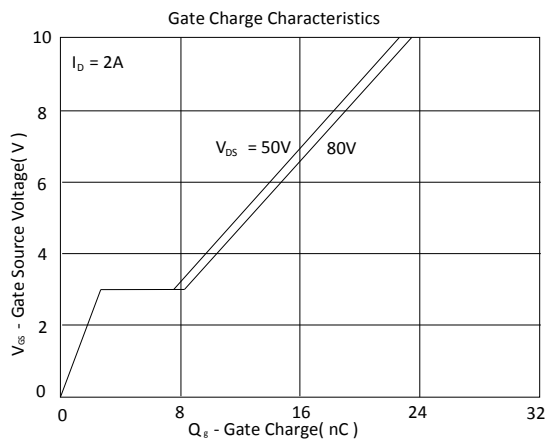
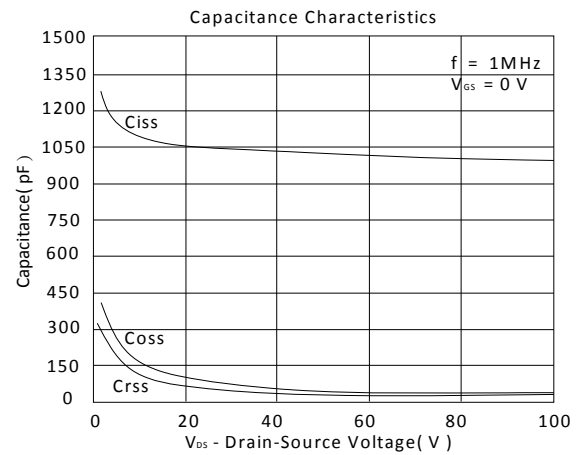
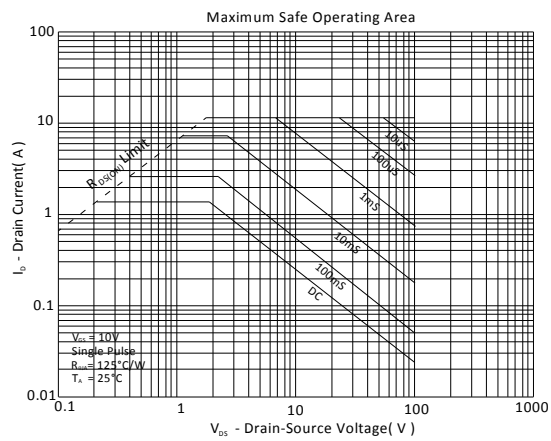
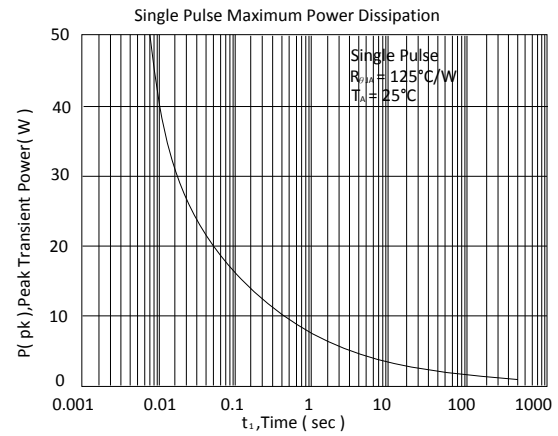
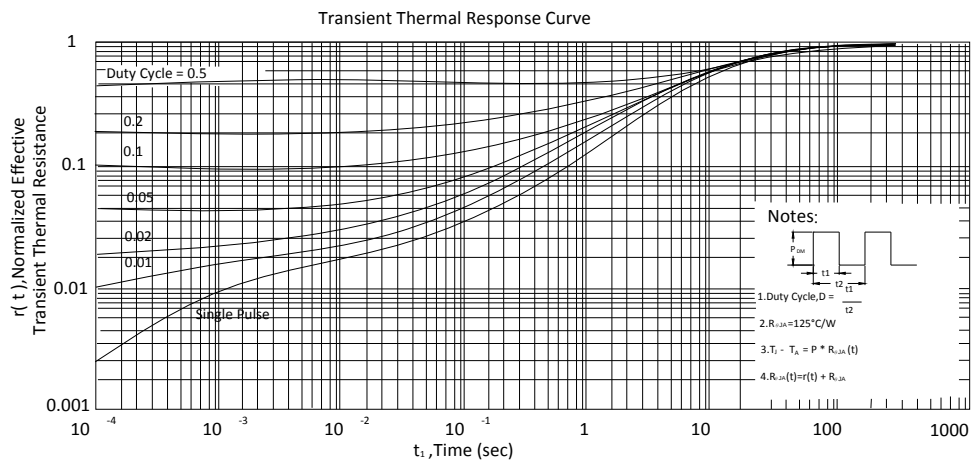
Dimension in mm

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

