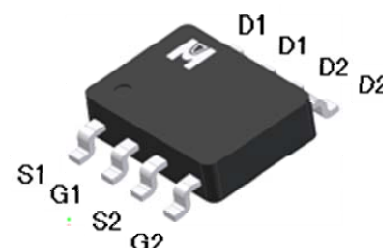
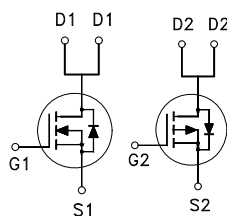


N & P-Channel Logic Level Enhancement Mode Field Effect Transistor

Product Summary:

	N-CH	P-CH
BV_{DSS}	60V	-60V
$R_{DS(on)} (MAX.)$	60m Ω	90m Ω
I_D	5A	-4A



Pb-Free Lead Plating & Halogen Free



ABSOLUTE MAXIMUM RATINGS ($T_A = 25\text{ }^{\circ}\text{C}$ 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	5	-4	A
	T _A = 100 °C			3.6	-2.8	
Pulsed Drain Current ¹			I _{DM}	20	-16	
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 ($T_J = 25\text{ }^{\circ}\text{C}$, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT	
			MIN	TYP	MAX		
STATIC							
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$ $V_{GS} = 0V, I_D = -250\mu A$	N-CH P-CH	60 -60			V
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 P-CH	1.0 -1.0	1.7 -1.7	3.0 -3.0	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$ $V_{DS} = 0V, V_{GS} = \pm 20V$	N-CH P-CH			± 100 ± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 48V, V_{GS} = 0V$ $V_{DS} = -48V, V_{GS} = 0V$	N-CH			1	μA
			P-CH			-1	
		$V_{DS} = 40V, V_{GS} = 0V, T_J = 125\text{ }^{\circ}C$ $V_{DS} = -40V, V_{GS} = 0V, T_J = 125\text{ }^{\circ}C$	N-CH			25	
			P-CH			-25	
On-State Drain Current ¹	$I_{D(ON)}$	$V_{DS} = 5V, V_{GS} = 10V$ $V_{DS} = -5V, V_{GS} = -10V$	N-CH	5			A
			P-CH	-4			
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 5A$ $V_{GS} = -10V, I_D = -4A$	N-CH		50	60	mΩ
			P-CH		78	90	
		$V_{GS} = 4.5V, I_D = 4A$ $V_{GS} = -4.5V, I_D = -2.5A$	N-CH		60	85	
			P-CH		100	135	
Forward Transconductance ¹	g_{fs}	$V_{DS} = 5V, I_D = 5A$ $V_{DS} = -5V, I_D = -4A$	N-CH		13		S
			P-CH		9		
DYNAMIC							
Input Capacitance	C_{iss}	N-CH $V_{GS} = 0V, V_{DS} = 30V, f = 1MHz$ P-CH $V_{GS} = 0V, V_{DS} = -30V, f = 1MHz$	N-CH		633		pF
Output Capacitance	C_{oss}		P-CH		963		
			N-CH		67		
Reverse Transfer Capacitance	C_{rss}		P-CH		76		
			N-CH		44		
			P-CH		61		

Total Gate Charge ^{1,2}	Q _g	N-CH V _{DS} = 30V, V _{GS} = 10V, I _D = 5A P-CH V _{DS} = -30V, V _{GS} = -10V, I _D = -4A	N-CH		13.8		nC
Gate-Source Charge ^{1,2}	Q _{gs}		P-CH		16.2		
Gate-Drain Charge ^{1,2}	Q _{gd}		N-CH		2.8		
			P-CH		2.0		
			N-CH		4.0		
			P-CH		3.5		
Turn-On Delay Time ^{1,2}	t _{d(on)}	N-CH V _{DS} = 30V, I _D = 1A, V _{GS} = 10V, R _{GS} = 6Ω	N-CH		10		nS
Rise Time ^{1,2}	t _r		P-CH		10		
			N-CH		7.5		
			P-CH		12		
Turn-Off Delay Time ^{1,2}	t _{d(off)}	P-CH V _{DS} = -30V, I _D = -1A, V _{GS} = -10V, R _{GS} = 6Ω	N-CH		15		
			P-CH		20		
Fall Time ^{1,2}	t _f		N-CH		10		
			P-CH		15		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T _C = 25 °C)							
Continuous Current	I _S		N-CH			5	A
			P-CH			-4	
Pulsed Current ³	I _{SM}		N-CH			20	
			P-CH			-16	
Forward Voltage ¹	V _{SD}	I _F = I _S , V _{GS} = 0V	N-CH			1.3	V
			P-CH			-1.3	

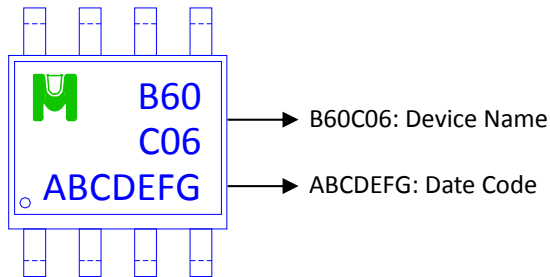
¹Pulse test : Pulse Width $\leq 300 \mu\text{sec}$, Duty Cycle $\leq 2\%$.

²Independent of operating temperature.

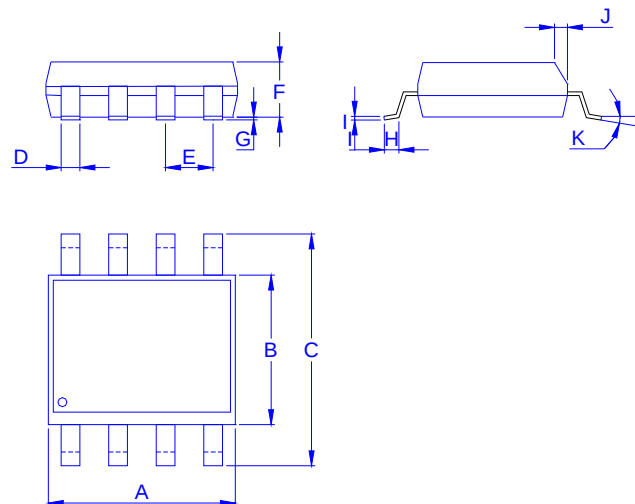
³Pulse width limited by maximum junction temperature.

Ordering & Marking Information:

Device Name: EMB60C06G for SOP-8



Outline Drawing

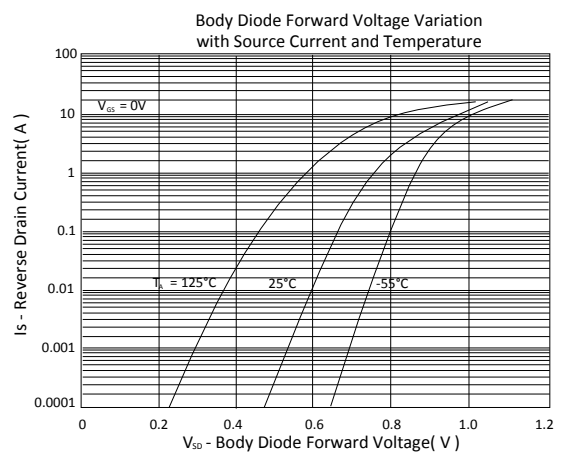
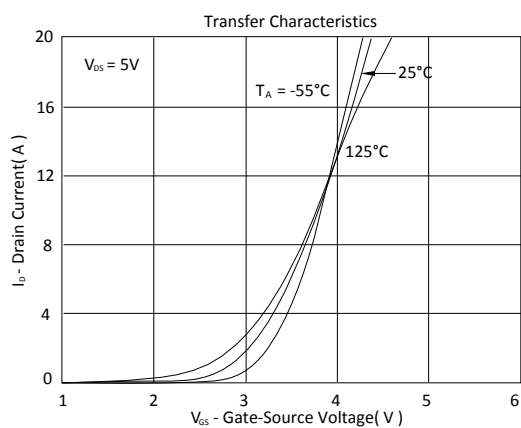
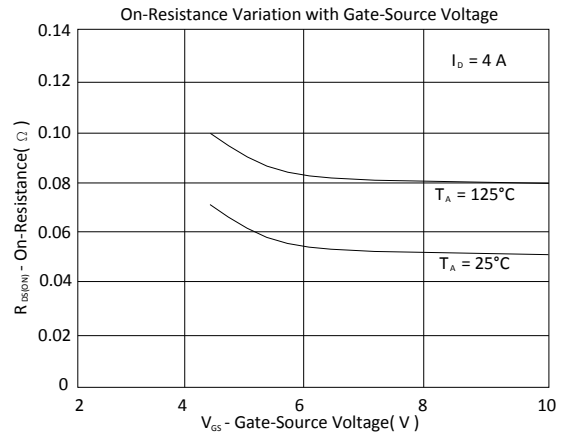
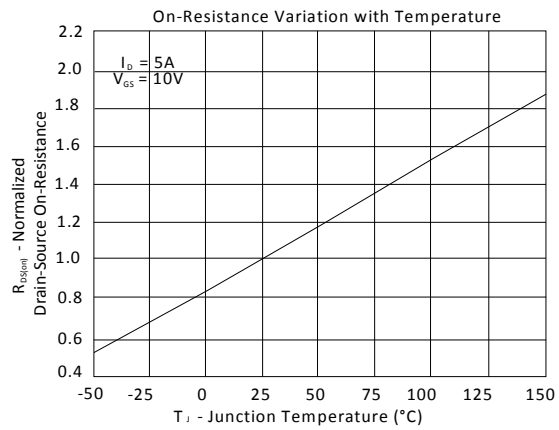
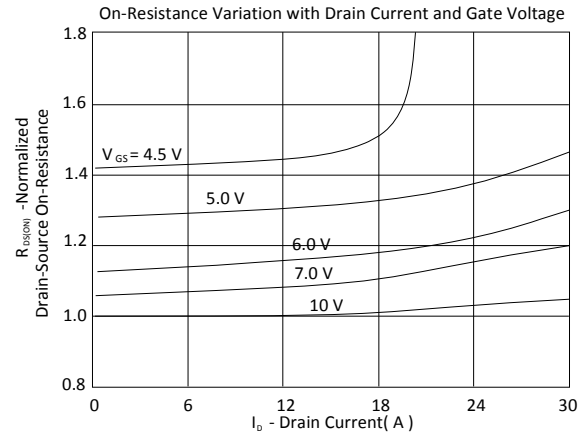
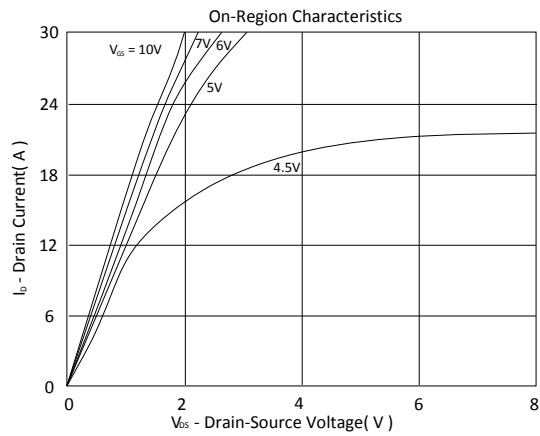


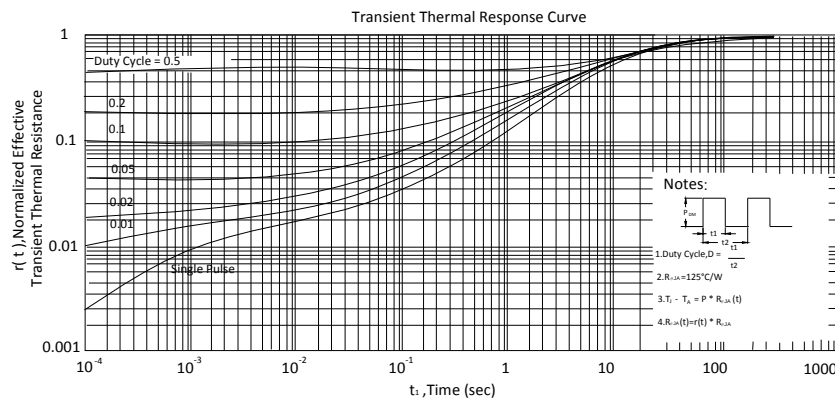
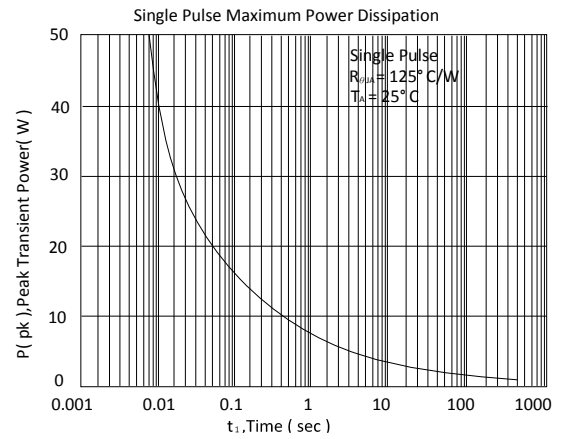
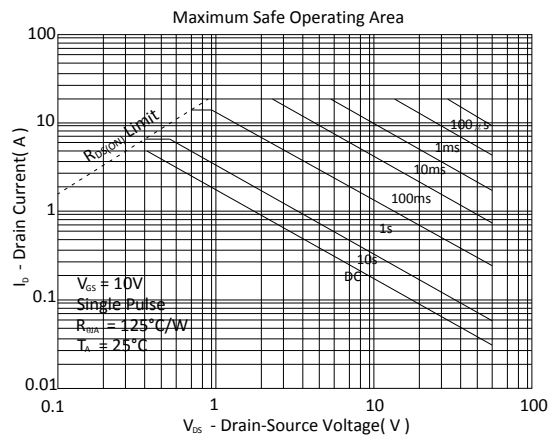
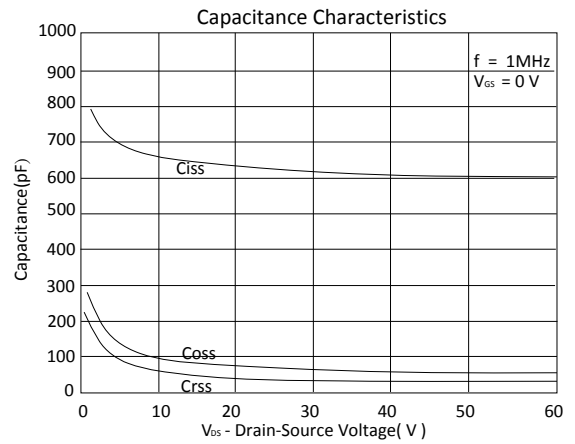
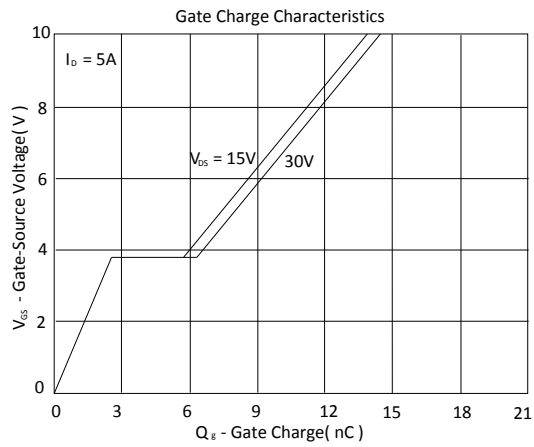
Dimension in mm

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

