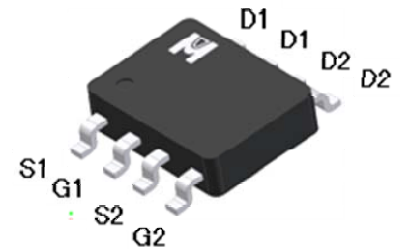
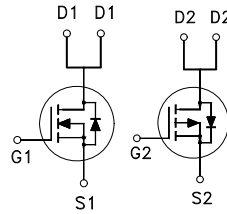


N & P-Channel Logic Level Enhancement Mode Field Effect Transistor

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	$T_A = 25\text{ }^\circ\text{C}$	I_D	5	-4	A
	$T_A = 100\text{ }^\circ\text{C}$		3.6	-2.8	
Pulsed Drain Current ¹		I_{DM}	20	-16	
Power Dissipation	$T_A = 25\text{ }^\circ\text{C}$	P_D	2		W
	$T_A = 100\text{ }^\circ\text{C}$		0.8		
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 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	60		V
			P-CH	-60		
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	1.0	1.7	3.0
			P-CH	-1.0	-1.7	-3.0
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$ $V_{DS} = 0V, V_{GS} = \pm 20V$	N-CH			± 100
			P-CH			± 100
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 48V, V_{GS} = 0V$ $V_{DS} = -48V, V_{GS} = 0V$	N-CH			1
			P-CH			-1
			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	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 5A$ $V_{GS} = -10V, I_D = -4A$ $V_{GS} = 4.5V, I_D = 4A$ $V_{GS} = -4.5V, I_D = -2.5A$	N-CH		50	60
			P-CH		78	90
			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 $V_{DS} = 30V, V_{GS} = 10V,$ $I_D = 5A$	N-CH		13.8	nC
			P-CH		16.2	
Gate-Source Charge ^{1,2}	Q_{gs}	P-CH $V_{DS} = -30V, V_{GS} = -10V,$ $I_D = -4A$	N-CH		2.8	
			P-CH		2.0	
Gate-Drain Charge ^{1,2}	Q_{gd}		N-CH		4.0	
			P-CH		3.5	
Turn-On Delay Time ^{1,2}	$t_{d(on)}$	N-CH $V_{DS} = 30V,$ $I_D = 1A, V_{GS} = 10V, R_{GS} = 6\Omega$	N-CH		10	nS
Rise Time ^{1,2}	t_r		P-CH		10	
Turn-Off Delay Time ^{1,2}	$t_{d(off)}$	P-CH $V_{DS} = -30V,$ $I_D = -1A, V_{GS} = -10V, R_{GS} = 6\Omega$	N-CH		7.5	
			P-CH		12	
Fall Time ^{1,2}	t_f		N-CH		15	
			P-CH		20	
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_c = 25\text{ }^\circ\text{C}$)						
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	

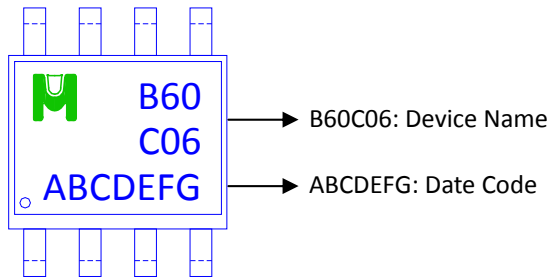
¹Pulse test : Pulse Width $\leq 300\ \mu\text{sec}$, Duty Cycle $\leq 2\%$.

²Independent of operating temperature.

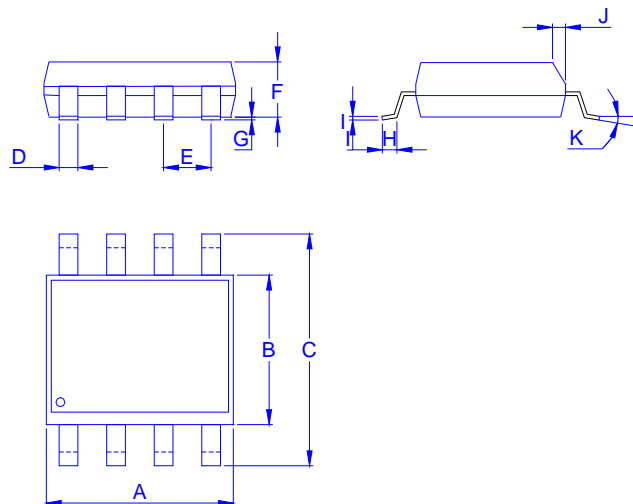
³Pulse width limited by maximum junction temperature.

Ordering & Marking Information:

Device Name: EMB60C06G for SOP-8



Outline Drawing

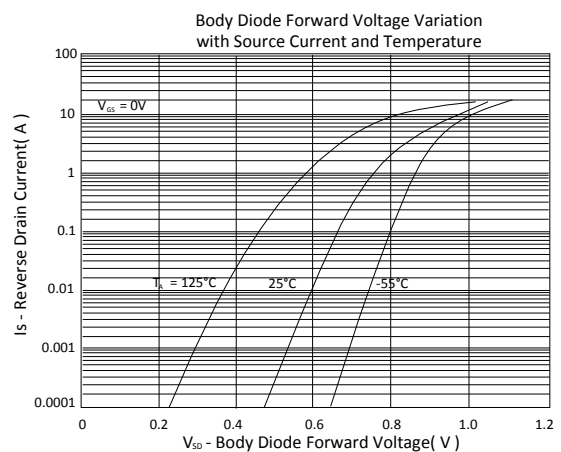
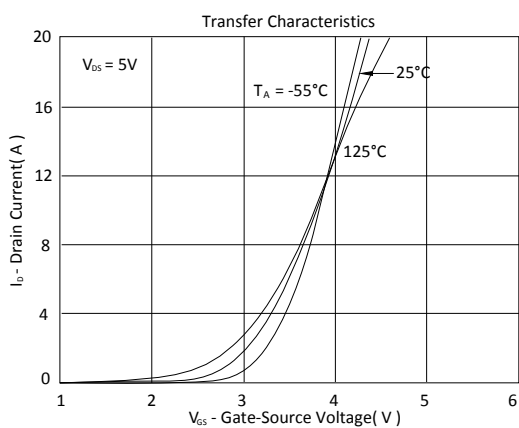
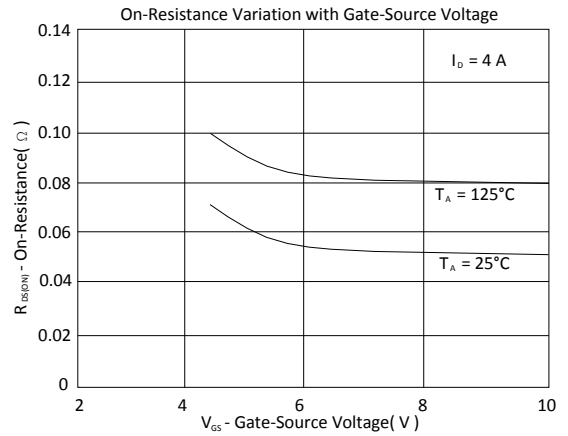
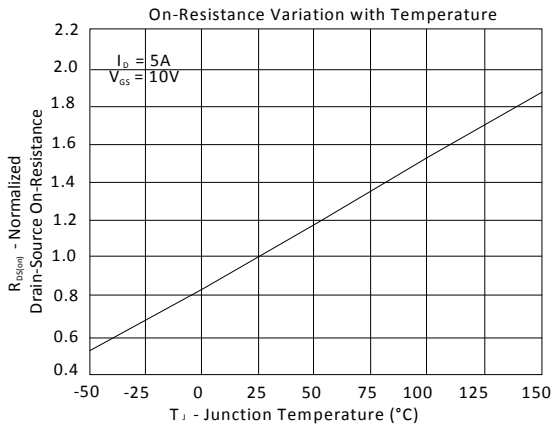
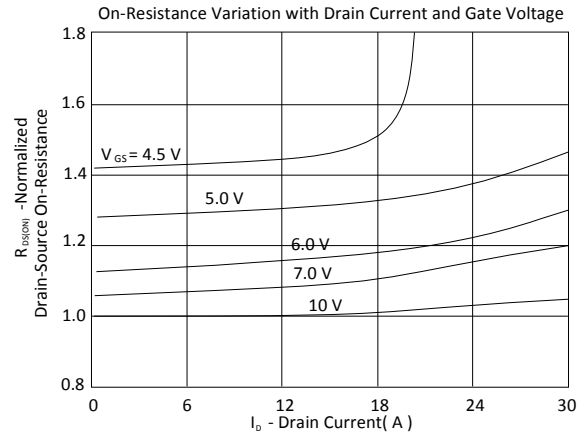
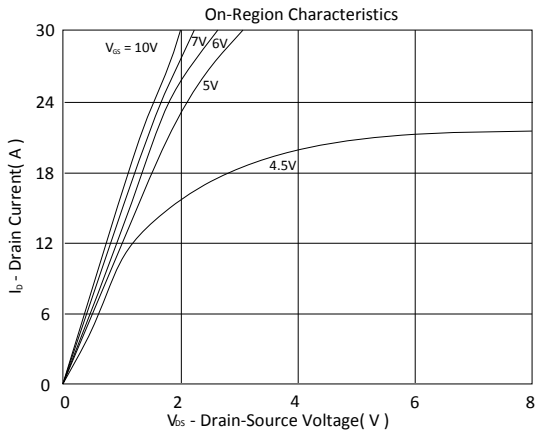


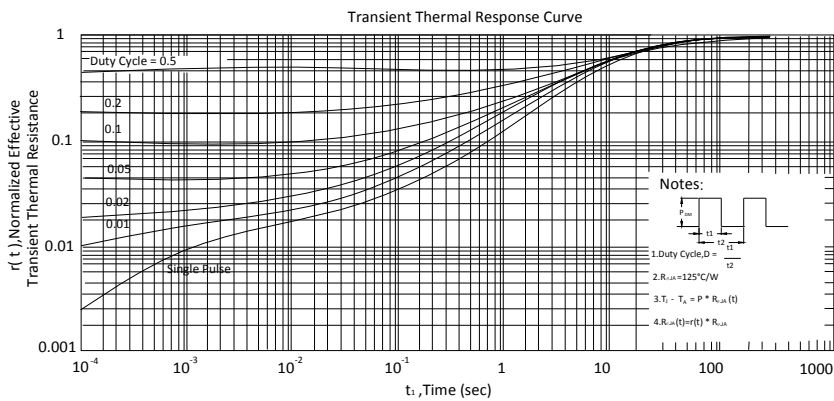
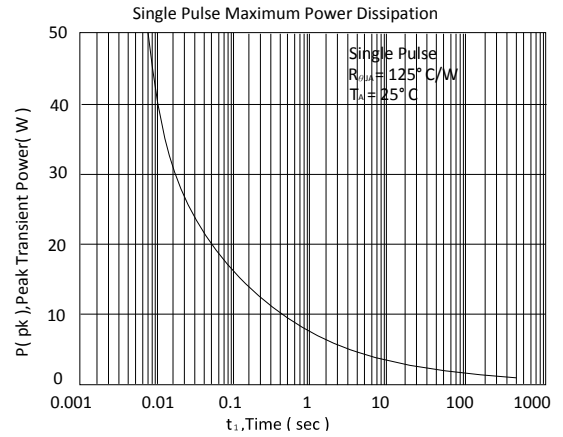
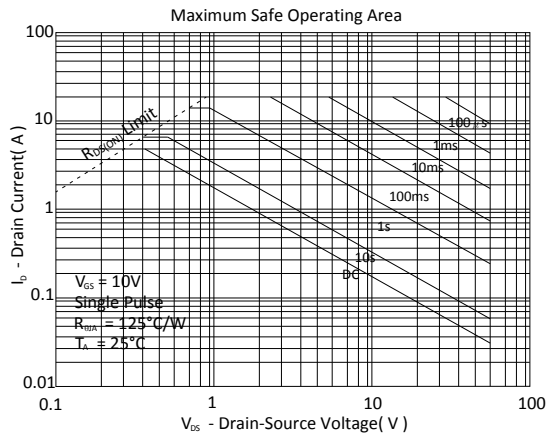
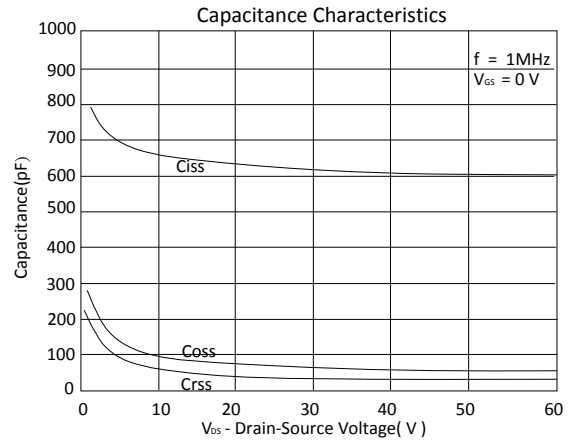
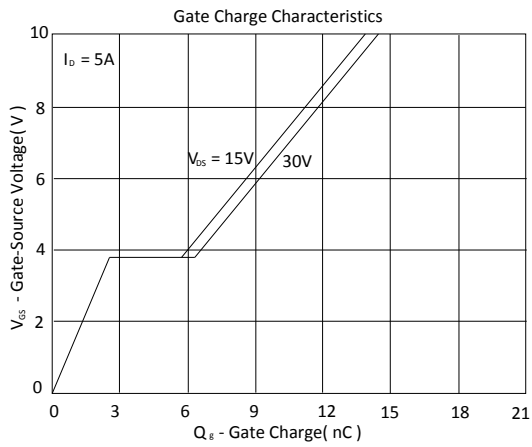
Dimension in mm

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

