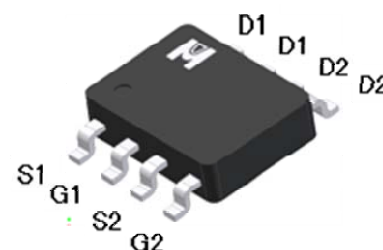
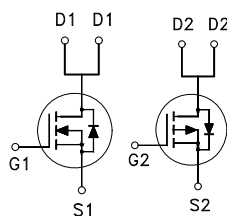


N & P-Channel Logic Level Enhancement Mode Field Effect Transistor

Product Summary:

	N-CH	P-CH
BV_{DSS}	20V	-20V
$R_{DS(on)} (MAX.)$	30.5m Ω	100m Ω
I_D	6.5A	-4.2A



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
			±12	±12	
Continuous Drain Current	T _A = 25 °C	I _D	6.5	-4.2	A
	T _A = 100 °C		4.5	-3.3	
Pulsed Drain Current ¹		I _{DM}	26	-16.8	
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	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$ $V_{GS} = 0V, I_D = -250\mu A$	N-CH P-CH	20 -20			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	0.45 -0.45	0.75 -0.75	1.2 -1.2	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 12V$ $V_{DS} = 0V, V_{GS} = \pm 12V$	N-CH P-CH			± 100 ± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 16V, V_{GS} = 0V$ $V_{DS} = -16V, V_{GS} = 0V$	N-CH			1	μA
			P-CH			-1	
		$V_{DS} = 16V, V_{GS} = 0V, T_J = 125\text{ }^{\circ}C$ $V_{DS} = -16V, V_{GS} = 0V, T_J = 125\text{ }^{\circ}C$	N-CH			10	
			P-CH			-10	
On-State Drain Current ¹	$I_{D(ON)}$	$V_{DS} = 5V, V_{GS} = 4.5V$ $V_{DS} = -5V, V_{GS} = -4.5V$	N-CH P-CH	6.5 -4.2			A
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = 4.5V, I_D = 6.5A$ $V_{GS} = -4.5V, I_D = -3.5A$	N-CH		26	30.5	mΩ
			P-CH		85	100	
		$V_{GS} = 2.5V, I_D = 3A$ $V_{GS} = -2.5V, I_D = -2A$	N-CH		40	50	
			P-CH		120	150	
Forward Transconductance ¹	g_{fs}	$V_{DS} = 5V, I_D = 6.5A$ $V_{DS} = -5V, I_D = -3.5A$	N-CH		7		S
			P-CH		4.5		
DYNAMIC							
Input Capacitance	C_{iss}	N-CH $V_{GS} = 0V, V_{DS} = 15V, f = 1MHz$ P-CH $V_{GS} = 0V, V_{DS} = -15V, f = 1MHz$	N-CH		280		pF
Output Capacitance	C_{oss}		P-CH		382		
			N-CH		47		
			P-CH		70		
			N-CH		38		
Reverse Transfer Capacitance	C_{rss}		P-CH		60		
Gate Resistance	R_g	$V_{GS} = 15mV, V_{DS} = 0V, f = 1MHz$	N-CH		2.0		Ω
			P-CH		5.0		

Total Gate Charge ^{1,2}	Q _g	N-CH V _{DS} = 10V, V _{GS} = 4.5V, I _D = 6.5A P-CH V _{DS} = -10V, V _{GS} = -4.5V, I _D = -3.5A	N-CH		6.2		nC
Gate-Source Charge ^{1,2}	Q _{gs}		P-CH		7.2		
Gate-Drain Charge ^{1,2}	Q _{gd}		N-CH		0.9		
			P-CH		1.2		
Turn-On Delay Time ^{1,2}	t _{d(on)}		N-CH		2.1		
			P-CH		2.3		
Rise Time ^{1,2}	t _r	N-CH V _{DS} = 10V, I _D = 1A, V _{GS} = 4.5V, R _{GS} = 6Ω	N-CH		5		nS
Turn-Off Delay Time ^{1,2}	t _{d(off)}		P-CH		5		
			N-CH		10		
			P-CH		12		
Fall Time ^{1,2}	t _f	P-CH V _{DS} = -10V, I _D = -1A, V _{GS} = -4.5V, R _{GS} = 6Ω	N-CH		20		
			P-CH		23		
			N-CH		8		
			P-CH		10		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T _C = 25 °C)							
Continuous Current	I _S		N-CH			2	A
			P-CH			-2	
Pulsed Current ³	I _{SM}		N-CH			8	
			P-CH			-8	
Forward Voltage ¹	V _{SD}	I _F = I _S , V _{GS} = 0V	N-CH			1.3	V
			P-CH			-1.3	

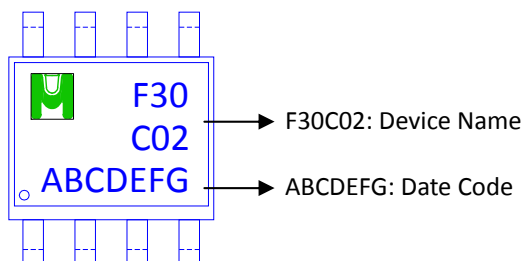
¹Pulse test : Pulse Width $\leq 300 \mu sec$, Duty Cycle $\leq 2\%$.

²Independent of operating temperature.

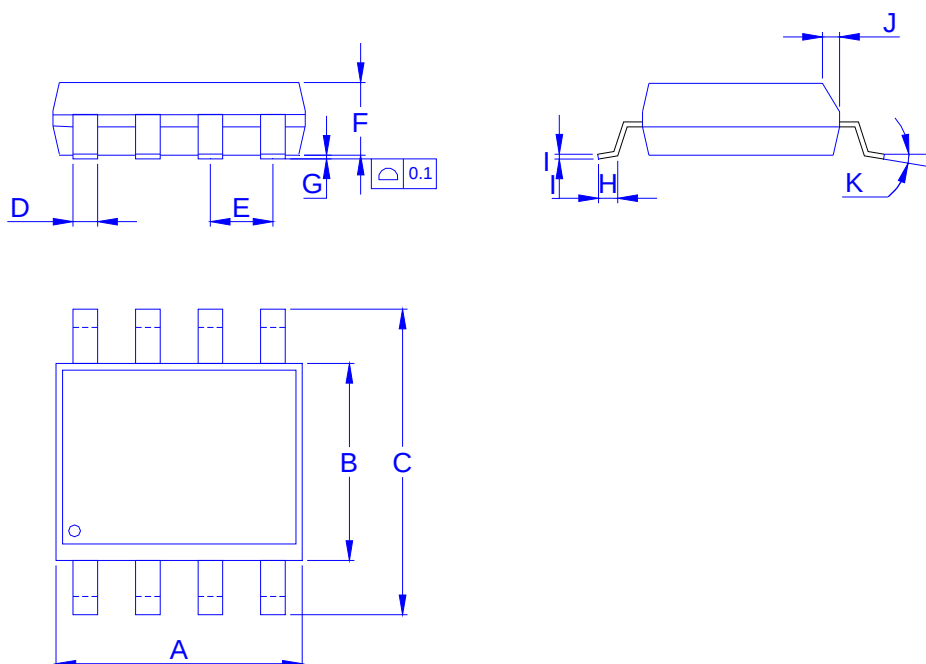
³Pulse width limited by maximum junction temperature.

Ordering & Marking Information:

Device Name: EMF30C02G for SOP-8



Outline Drawing

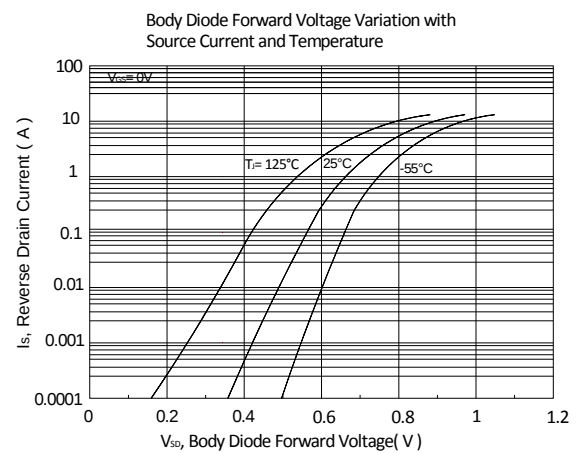
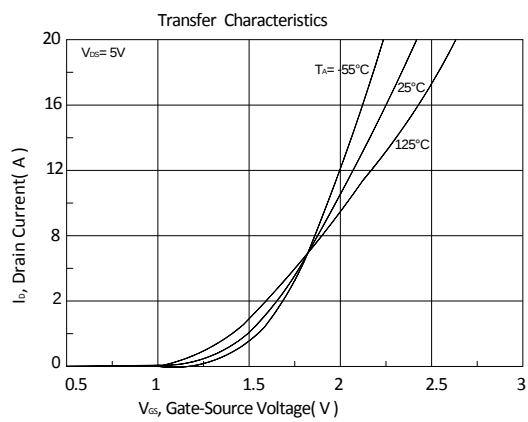
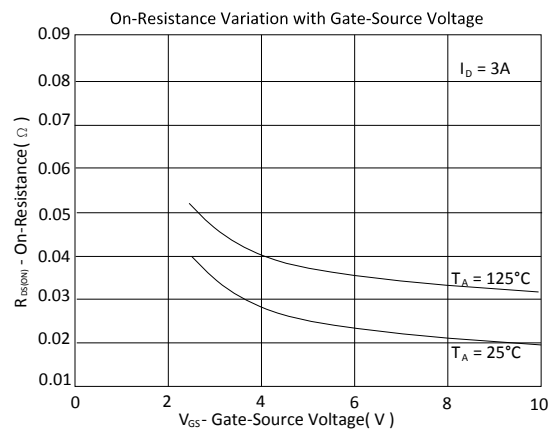
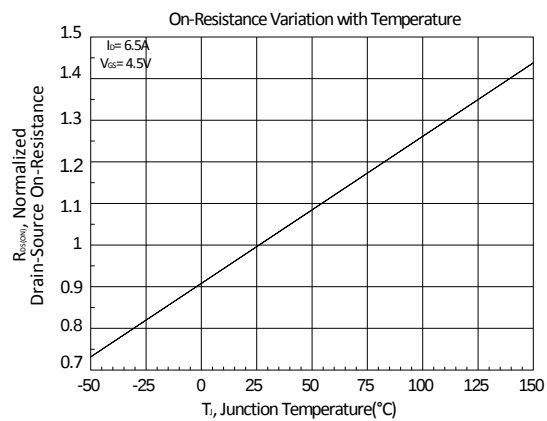
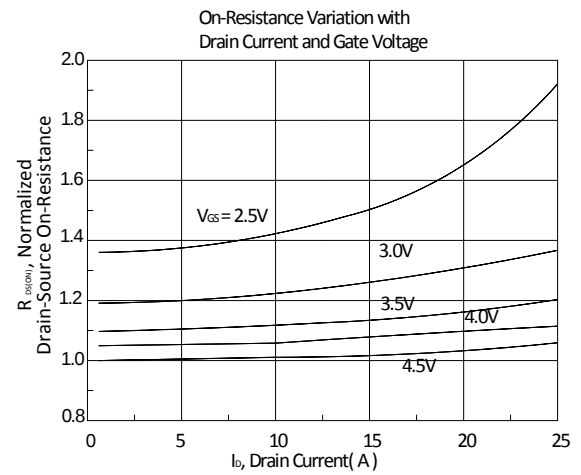
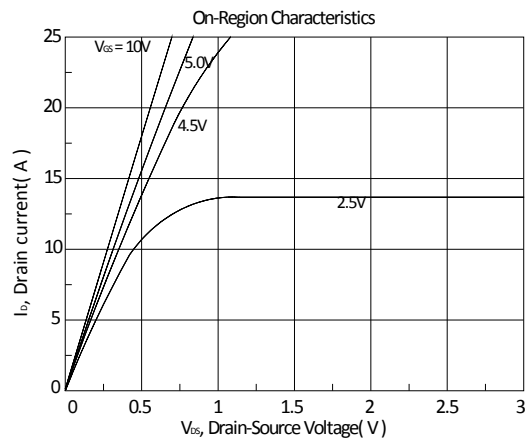


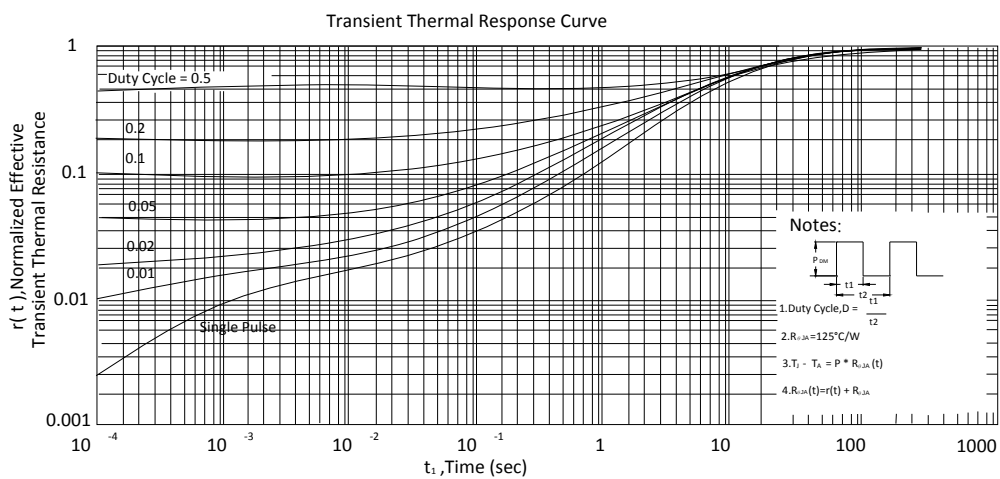
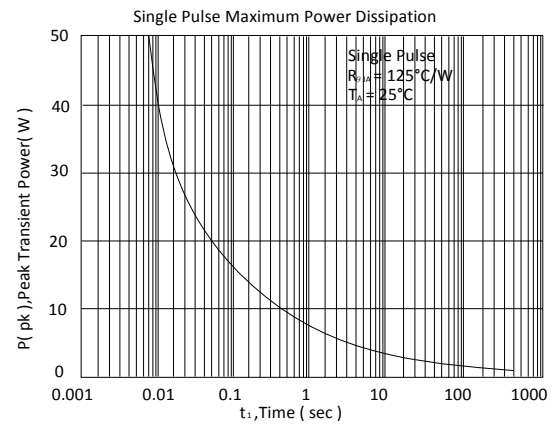
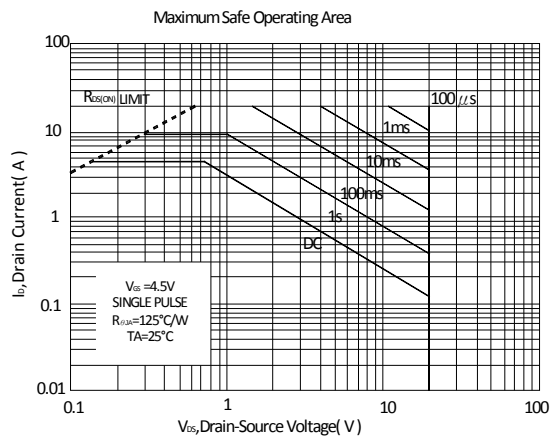
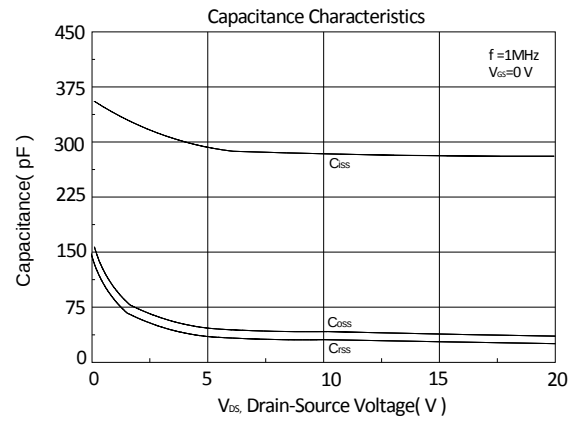
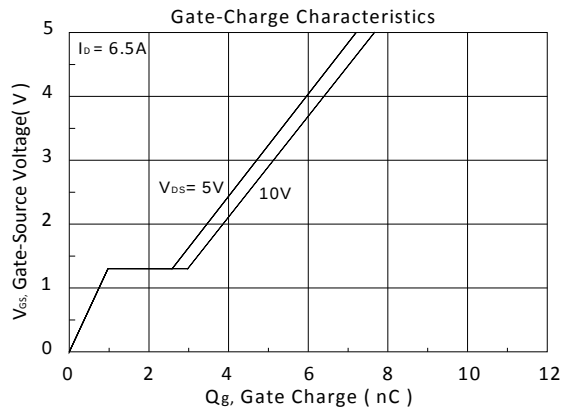
Dimension in mm

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

