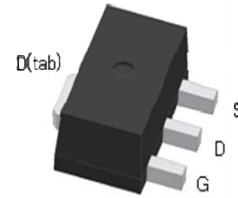


P-Channel Logic Level Enhancement Mode Field Effect Transistor

Product Summary:

BV_{DSS}	-60V
$R_{DS(on)}$ (MAX.)	150m Ω
I_D	-2.4A



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}	± 20	V
Continuous Drain Current	$T_A = 25\text{ }^\circ\text{C}$	I_D	-2.4	A
	$T_A = 70\text{ }^\circ\text{C}$		-1.5	
Pulsed Drain Current ¹		I_{DM}	-9.6	
Power Dissipation	$T_A = 25\text{ }^\circ\text{C}$	P_D	1.47	W
	$T_A = 70\text{ }^\circ\text{C}$		0.94	
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	$R_{\theta JC}$		18	$^\circ\text{C} / \text{W}$
Junction-to-Ambient ³	$R_{\theta JA}$		85	

¹Pulse width limited by maximum junction temperature.

²Duty cycle $\leq 1\%$

³85 $^\circ\text{C} / \text{W}$ 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	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-60			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1	-1.7	-3	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -48V, V_{GS} = 0V$			-1	μA
		$V_{DS} = -40V, V_{GS} = 0V, T_J = 125\text{ }^\circ\text{C}$			-25	
On-State Drain Current ¹	$I_{D(ON)}$	$V_{DS} = -5V, V_{GS} = -10V$	-2.4			A
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = -10V, I_D = -2.4A$		125	150	$m\Omega$
		$V_{GS} = -4.5V, I_D = -2.0A$		160	200	
Forward Transconductance ¹	g_{fs}	$V_{DS} = -5V, I_D = -2A$		3		S
DYNAMIC						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = -30V, f = 1MHz$		1032		pF
Output Capacitance	C_{oss}			66		
Reverse Transfer Capacitance	C_{rss}			48		
Total Gate Charge ^{1,2}	Q_g	$V_{DS} = -10V, V_{GS} = -10V,$ $I_D = -2A$		12.3		nC
Gate-Source Charge ^{1,2}	Q_{gs}			1.6		
Gate-Drain Charge ^{1,2}	Q_{gd}			2.4		
Turn-On Delay Time ^{1,2}	$t_{d(on)}$	$V_{DS} = -10V,$ $I_D = -1A, V_{GS} = -10V, R_{GS} = 6\Omega$		12		nS
Rise Time ^{1,2}	t_r			20		
Turn-Off Delay Time ^{1,2}	$t_{d(off)}$			20		
Fall Time ^{1,2}	t_f			25		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_C = 25\text{ }^\circ\text{C}$)						
Continuous Current	I_S				-2.4	A
Pulsed Current ³	I_{SM}				-9.6	
Forward Voltage ¹	V_{SD}	$I_F = I_S, V_{GS} = 0V$			1.2	V

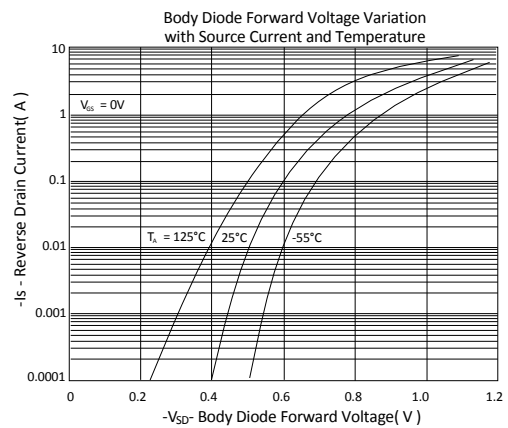
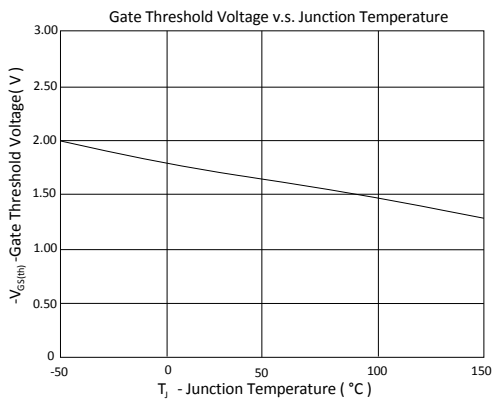
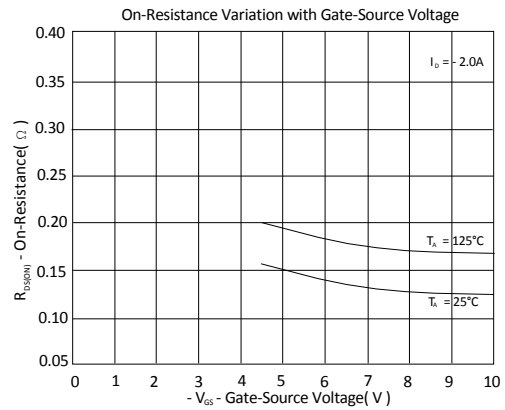
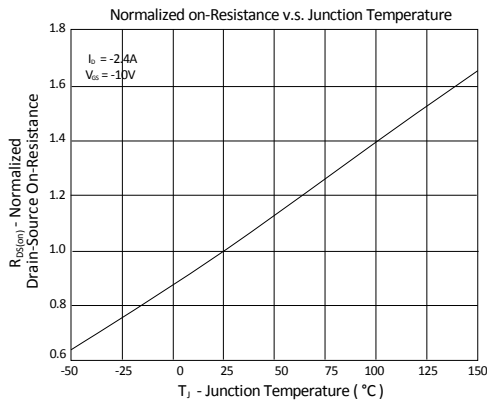
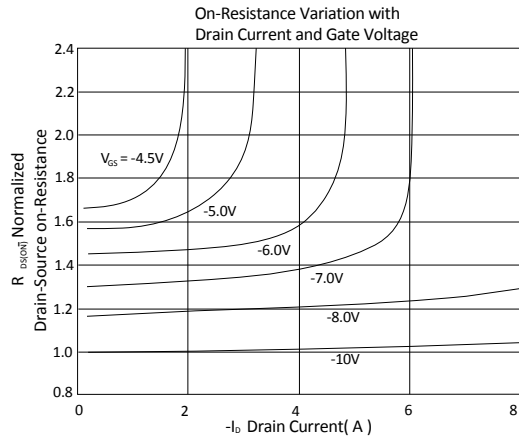
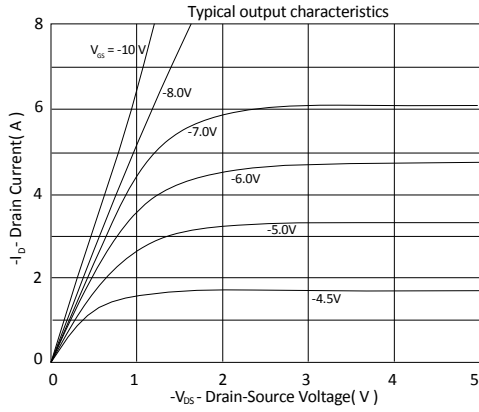
¹Pulse test : Pulse Width $\leq 300\ \mu\text{sec}$, Duty Cycle $\leq 2\%$.

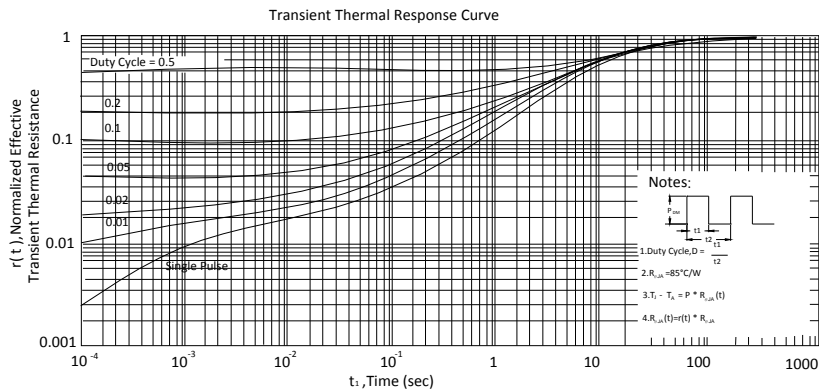
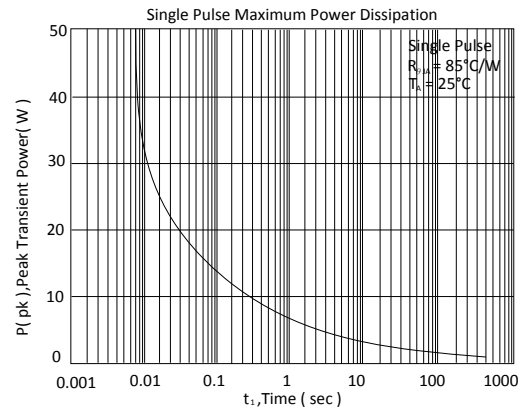
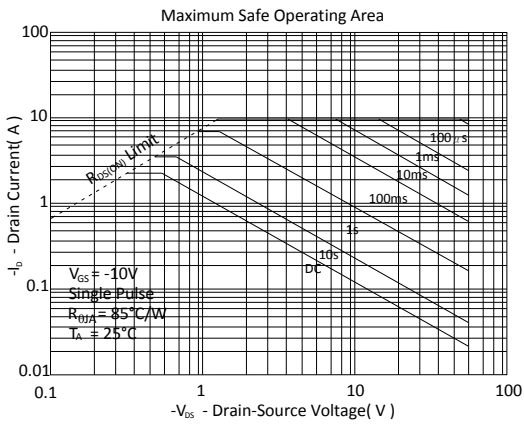
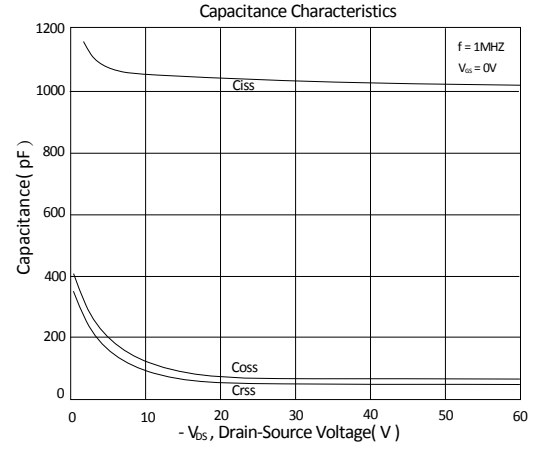
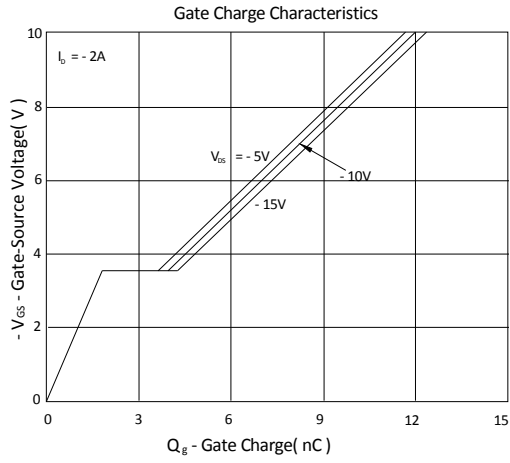
²Independent of operating temperature.

³Pulse width limited by maximum junction temperature.



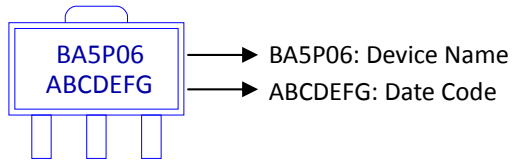
TYPICAL CHARACTERISTICS



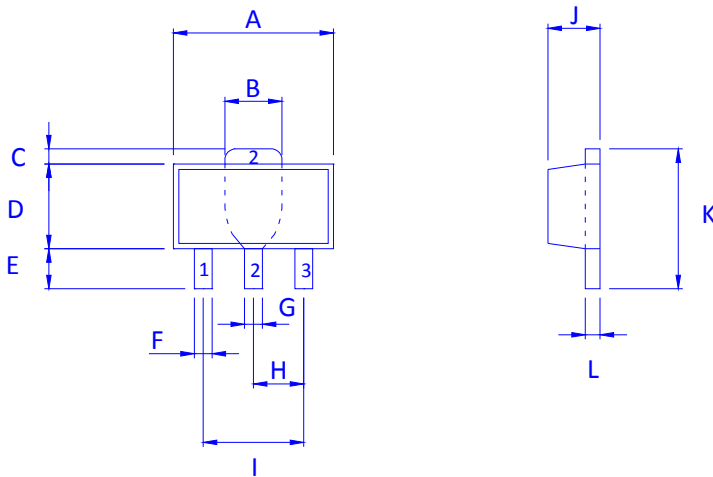


Ordering & Marking Information:

Device Name: EMBA5P06P for SOT-89



Outline Drawing



Dimension in mm

Dimension	A	B	C	D	E	F	G	H	I	J	K	L
in.	4.30	1.60	0.40	2.40	0.80	0.40	0.40	1.40	2.80	1.30	3.80	0.30
Typ.												
Max.	4.70	1.80	0.60	2.60	1.40	0.50	0.60	1.60	3.20	1.70	4.60	0.50

Footprint

