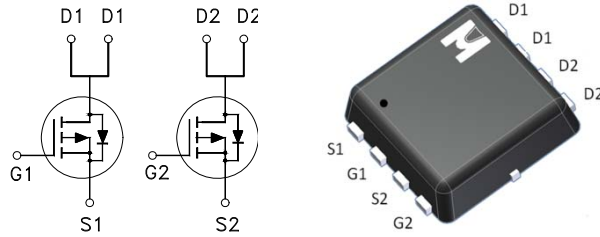


P-Channel Logic Level Enhancement Mode Field Effect Transistor

Product Summary:

BV_{DSS}	-20V
$R_{DS(on)}$ (MAX.)	20m Ω
I_D	-8.5A



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}	± 12	V
Continuous Drain Current	$T_A = 25\text{ }^\circ\text{C}$	I_D	-8.5	A
	$T_A = 70\text{ }^\circ\text{C}$		-6	
Pulsed Drain Current ¹		I_{DM}	-34	
Power Dissipation	$T_A = 25\text{ }^\circ\text{C}$	P_D	2	W
	$T_A = 70\text{ }^\circ\text{C}$		1.28	
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 ($T_A = 25\text{ }^\circ\text{C}$, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT		
			MIN	TYP	MAX			
STATIC								
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-20			V		
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.4	-0.75	-1.2			
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 12V$			± 100	nA		
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -16V, V_{GS} = 0V$			-1	μA		
		$V_{DS} = -12V, V_{GS} = 0V, T_J = 125\text{ }^\circ\text{C}$			-10			
On-State Drain Current ¹	$I_{D(ON)}$	$V_{DS} = -5V, V_{GS} = -4.5V$	-8.5			A		
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = -4.5V, I_D = -8.5A$		15	20	$m\Omega$		
		$V_{GS} = -2.5V, I_D = -4.5A$		19	25			
		$V_{GS} = -1.8V, I_D = -2.5A$		26	40			
Forward Transconductance ¹	g_{fs}	$V_{DS} = -5V, I_D = -8.5A$		22		S		
DYNAMIC								
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = -10V, f = 1MHz$		3050		pF		
Output Capacitance	C_{oss}			460				
Reverse Transfer Capacitance	C_{rss}			410				
Total Gate Charge ^{1,2}	$Q_g(V_{GS}=-4.5V)$	$V_{DS} = -10V, V_{GS} = -4.5V, I_D = -8.5A$		27		nC		
	$Q_g(V_{GS}=-2.5V)$			16.5				
Gate-Source Charge ^{1,2}	Q_{gs}			2.2				
Gate-Drain Charge ^{1,2}	Q_{gd}			6.8				
Turn-On Delay Time ^{1,2}	$t_{d(on)}$		$V_{DS} = -10V, I_D = -1A, V_{GS} = -4.5V, R_{GS} = 6\Omega$		20			nS
Rise Time ^{1,2}	t_r				50			
Turn-Off Delay Time ^{1,2}	$t_{d(off)}$			90				
Fall Time ^{1,2}	t_f			60				
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_C = 25\text{ }^\circ\text{C}$)								
Continuous Current	I_S				-2.3	A		
Pulsed Current ³	I_{SM}				-9.2			
Forward Voltage ¹	V_{SD}	$I_F = I_S, V_{GS} = 0V$			-1.2	V		

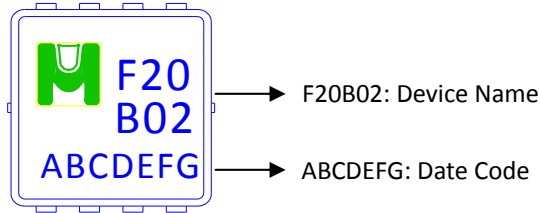
¹Pulse test : Pulse Width $\leq 300\ \mu\text{sec}$, Duty Cycle $\leq 2\%$.

²Independent of operating temperature.

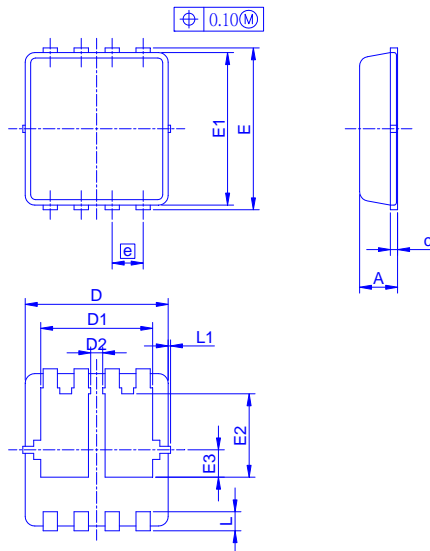
³Pulse width limited by maximum junction temperature.

Ordering & Marking Information:

Device Name: EMF20B02V for EDFN 3 x 3



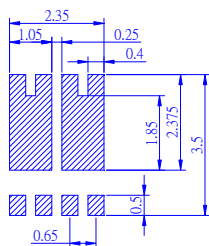
Outline Drawing



Dimension in mm

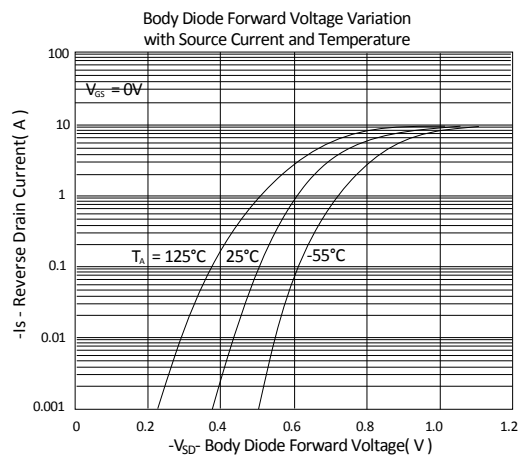
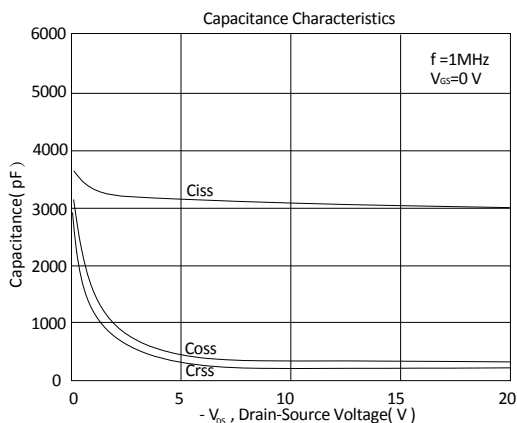
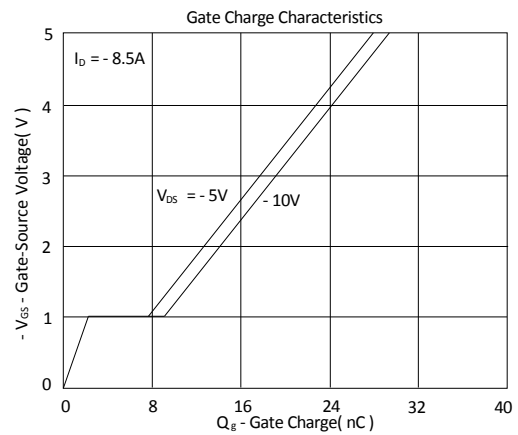
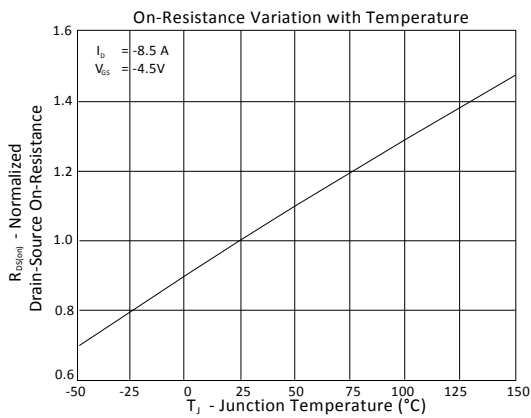
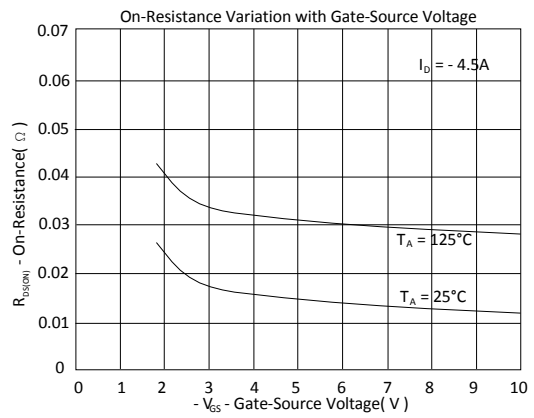
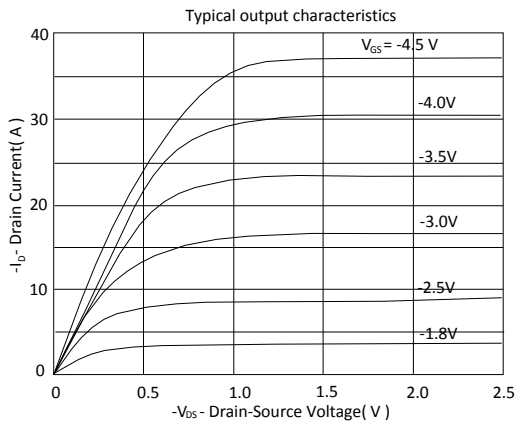
Dimension	A	A1	b	c	D	D1	D2	E	E1	E2	E3	e	L	L1	θ1
Min.	0.70	0	0.24	0.10	2.95	2.25		3.15	2.95	1.65			0.30	0	0°
Typ.	0.80		0.30	0.152	3.00	2.35	0.225	3.20	3.00	1.75	0.575	0.65	0.40		10°
Max.	0.90	0.05	0.35	0.25	3.05	2.45		3.25	3.05	1.85			0.50	0.10	12°

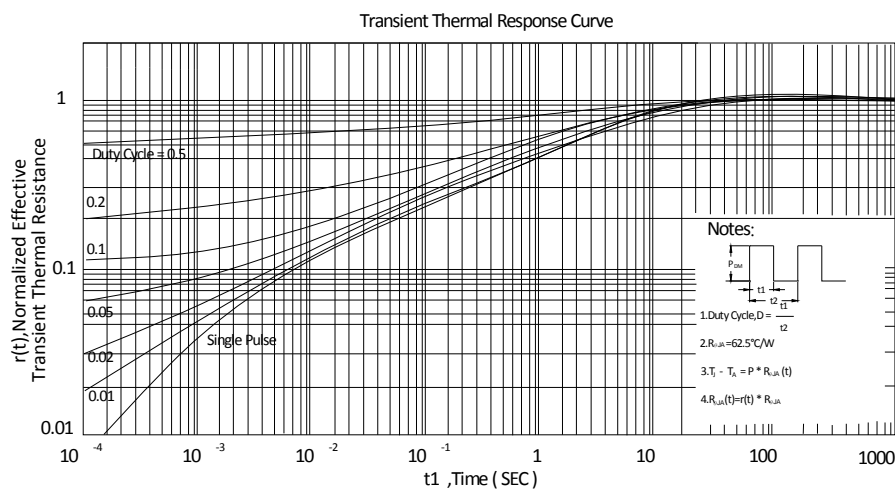
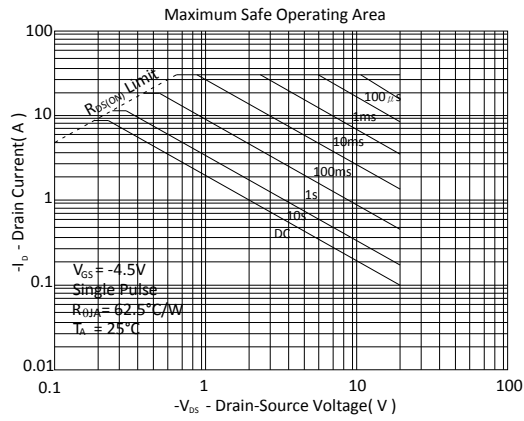
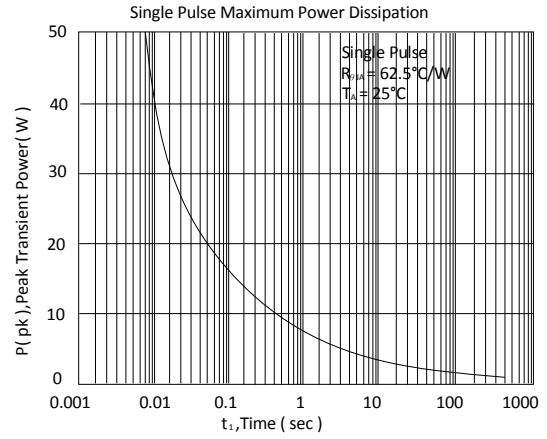
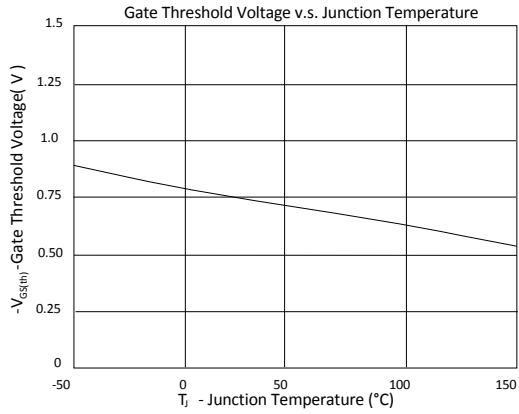
Recommended minimum pads





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