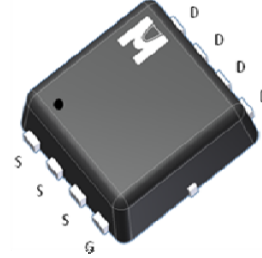


P-Channel Logic Level Enhancement Mode Field Effect Transistor

Product Summary:

BV <sub>DSS</sub>	-12V
R <sub>DS(on)</sub> (MAX.)	20mΩ
I <sub>D</sub>	-14A



Pb-Free Lead Plating & Halogen Free



ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub> = 25 °C Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNIT
Gate-Source Voltage		V <sub>GS</sub>	±8	V
Continuous Drain Current	T <sub>A</sub> = 25 °C	I <sub>D</sub>	-14	A
	T <sub>A</sub> = 70 °C		-10.5	
Pulsed Drain Current <sup>1</sup>		I <sub>DM</sub>	-56	
Power Dissipation	T <sub>A</sub> = 25 °C	P <sub>D</sub>	2.5	W
	T <sub>A</sub> = 70 °C		1.6	
Operating Junction & Storage Temperature Range		T <sub>j</sub> , T <sub>stg</sub>	-55 to 150	°C

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNIT
Junction-to-Case	R <sub>θJC</sub>		6	°C / W
Junction-to-Ambient <sup>3</sup>	R <sub>θJA</sub>		50	

<sup>1</sup>Pulse width limited by maximum junction temperature.

<sup>2</sup>Duty cycle ≤ 1%

<sup>3</sup>50°C / W when mounted on a 1 in<sup>2</sup> 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			
<b>STATIC</b>								
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-12			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	$I_{GSS}$	$V_{DS} = 0V, V_{GS} = \pm 8V$			$\pm 100$	nA		
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -12V, V_{GS} = 0V$			-1	$\mu A$		
		$V_{DS} = -10V, V_{GS} = 0V, T_J = 125\text{ }^\circ\text{C}$			-10			
On-State Drain Current <sup>1</sup>	$I_{D(ON)}$	$V_{DS} = -5V, V_{GS} = -4.5V$	-14			A		
Drain-Source On-State Resistance <sup>1</sup>	$R_{DS(ON)}$	$V_{GS} = -4.5V, I_D = -9A$		15	20	m $\Omega$		
		$V_{GS} = -2.5V, I_D = -5A$		19	25			
		$V_{GS} = -1.8V, I_D = -3A$		26	40			
Forward Transconductance <sup>1</sup>	$g_{fs}$	$V_{DS} = -5V, I_D = -9A$		22		S		
<b>DYNAMIC</b>								
Input Capacitance	$C_{iss}$	$V_{GS} = 0V, V_{DS} = -6V, f = 1MHz$		3100		pF		
Output Capacitance	$C_{oss}$			460				
Reverse Transfer Capacitance	$C_{rss}$			413				
Total Gate Charge <sup>1,2</sup>	$Q_g(V_{GS}=-4.5V)$	$V_{DS} = -6V, V_{GS} = -4.5V, I_D = -9A$		25.5		nC		
	$Q_g(V_{GS}=-2.5V)$			15				
Gate-Source Charge <sup>1,2</sup>	$Q_{gs}$			2.2				
Gate-Drain Charge <sup>1,2</sup>	$Q_{gd}$			5.7				
Turn-On Delay Time <sup>1,2</sup>	$t_{d(on)}$		$V_{DS} = -6V, I_D = -1A, V_{GS} = -4.5V, R_{GS} = 6\Omega$		20			nS
Rise Time <sup>1,2</sup>	$t_r$				50			
Turn-Off Delay Time <sup>1,2</sup>	$t_{d(off)}$			95				
Fall Time <sup>1,2</sup>	$t_f$			60				
<b>SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (<math>T_C = 25\text{ }^\circ\text{C}</math>)</b>								
Continuous Current	$I_S$				-3.5	A		
Pulsed Current <sup>3</sup>	$I_{SM}$				-14			
Forward Voltage <sup>1</sup>	$V_{SD}$	$I_F = I_S, V_{GS} = 0V$			-1.2	V		

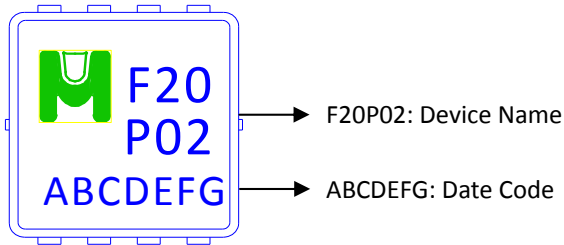
<sup>1</sup>Pulse test : Pulse Width  $\leq 300\ \mu\text{sec}$ , Duty Cycle  $\leq 2\%$ .

<sup>2</sup>Independent of operating temperature.

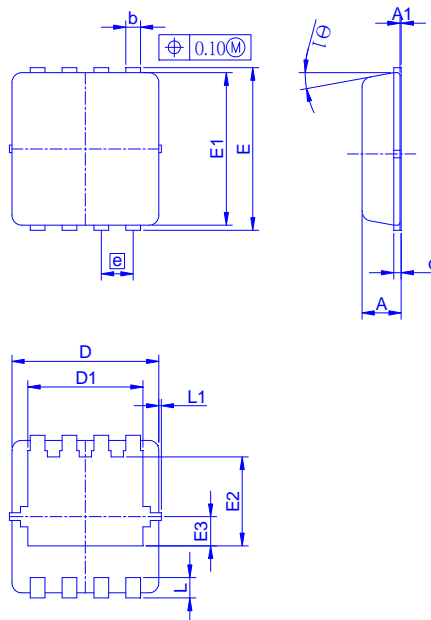
<sup>3</sup>Pulse width limited by maximum junction temperature.

Ordering & Marking Information:

Device Name: EMF20P02V for EDFN 3 x 3



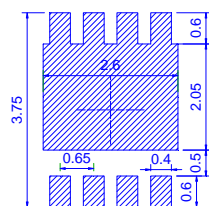
Outline Drawing



Dimension in mm

Dimension	A	A1	b	c	D	D1	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°
Typ.	0.80		0.30	0.152	3.00	2.35	3.20	3.00	1.75	0.575	0.65	0.40	0.13	10°
Max.	0.90	0.05	0.37	0.25	3.15	2.45	3.40	3.15	1.96			0.50		12°

Recommended minimum pads





TYPICAL CHARACTERISTICS

