

P-Channel Logic Level Enhancement Mode Field Effect Transistor

Product Summary:

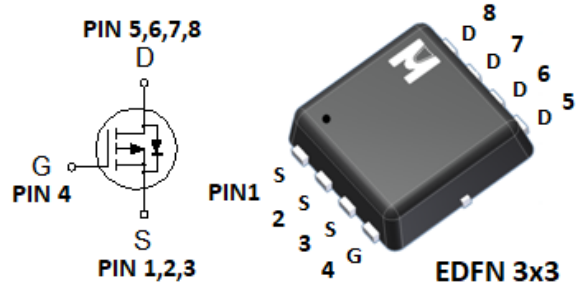
	P-CH
BV_{DSS}	-30V
$R_{DS(on)} (MAX.) @ V_{GS} = -10V$	14m Ω
$R_{DS(on)} (MAX.) @ V_{GS} = -4.5V$	22m Ω
$I_D @ T_C = 25^\circ C$	-20A

P Channel MOSFET

UIS, Rg 100% Tested

Pb-Free Lead Plating & Halogen Free

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ C$ Unless Otherwise Noted)



PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNIT
Gate-Source Voltage		V_{GS}	± 25	V
Continuous Drain Current	$T_C = 25^\circ C$	I_D	-20	A
	$T_A = 25^\circ C$		-11	
	$T_C = 100^\circ C$		-15	
Pulsed Drain Current ¹		I_{DM}	-80	
Avalanche Current		I_{AS}	-19	
Avalanche Energy	$L = 0.5mH, I_{AS} = -19A, R_G = 25\Omega$	E_{AS}	90	mJ
Repetitive Avalanche Energy ²	$L = 0.25mH$	E_{AR}	45	
Power Dissipation	$T_A = 25^\circ C$	P_D	2.5	W
	$T_A = 100^\circ C$		1	
Operating Junction & Storage Temperature Range		T_J, T_{stg}	-55 to 150	$^\circ C$

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNIT
Junction-to-Case	$R_{\theta JC}$		6	$^\circ C / W$
Junction-to-Ambient ³	$R_{\theta JA}$		50	

¹Pulse width limited by maximum junction temperature.

²Duty cycle $\leq 1\%$

³50 $^\circ C / W$ 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 = -250μA	-30			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-1	-1.5	-3	
Gate-Body Leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±20V			±100	nA
		V _{DS} = 0V, V _{GS} = ±25V			±500	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -24V, V _{GS} = 0V			-1	μA
		V _{DS} = -20V, V _{GS} = 0V, T _J = 125 °C			-10	
On-State Drain Current ¹	I _{D(ON)}	V _{DS} = -5V, V _{GS} = -10V	-20			A
Drain-Source On-State Resistance ¹	R _{DS(ON)}	V _{GS} = -10V, I _D = -12A		12	14	mΩ
		V _{GS} = -4.5V, I _D = -9A		17	22	
Forward Transconductance ¹	g _{fs}	V _{DS} = -5V, I _D = -12A		28		S
DYNAMIC						
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = -15V, f = 1MHz		2270		pF
Output Capacitance	C _{oss}			342		
Reverse Transfer Capacitance	C _{rss}			300		
Gate Resistance	R _g	V _{GS} = 15mV, V _{DS} = 0V, f = 1MHz		3.7		Ω
Total Gate Charge ^{1,2}	Q _g (V _{GS} =10V)	V _{DS} = -15V, V _{GS} = -10V, I _D = -12A		39.3		nC
	Q _g (V _{GS} =4.5V)			16		
Gate-Source Charge ^{1,2}	Q _{gs}			4.9		
Gate-Drain Charge ^{1,2}	Q _{gd}			7.5		
Turn-On Delay Time ^{1,2}	t _{d(on)}	V _{DS} = -15V, I _D = -1A, V _{GS} = -10V, R _{GS} = 2.7Ω		20		nS
Rise Time ^{1,2}	t _r			12		
Turn-Off Delay Time ^{1,2}	t _{d(off)}			55		
Fall Time ^{1,2}	t _f			15		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T _c = 25 °C)						
Continuous Current	I _S				-3.5	A
Pulsed Current ³	I _{SM}				-14	
Forward Voltage ¹	V _{SD}	I _F = I _S A, V _{GS} = 0V			-1.2	V
Reverse Recovery Time	t _{rr}	I _F = I _S , dI _F /dt = 100A / μS		52		nS
Reverse Recovery Charge	Q _{rr}			60		nC

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

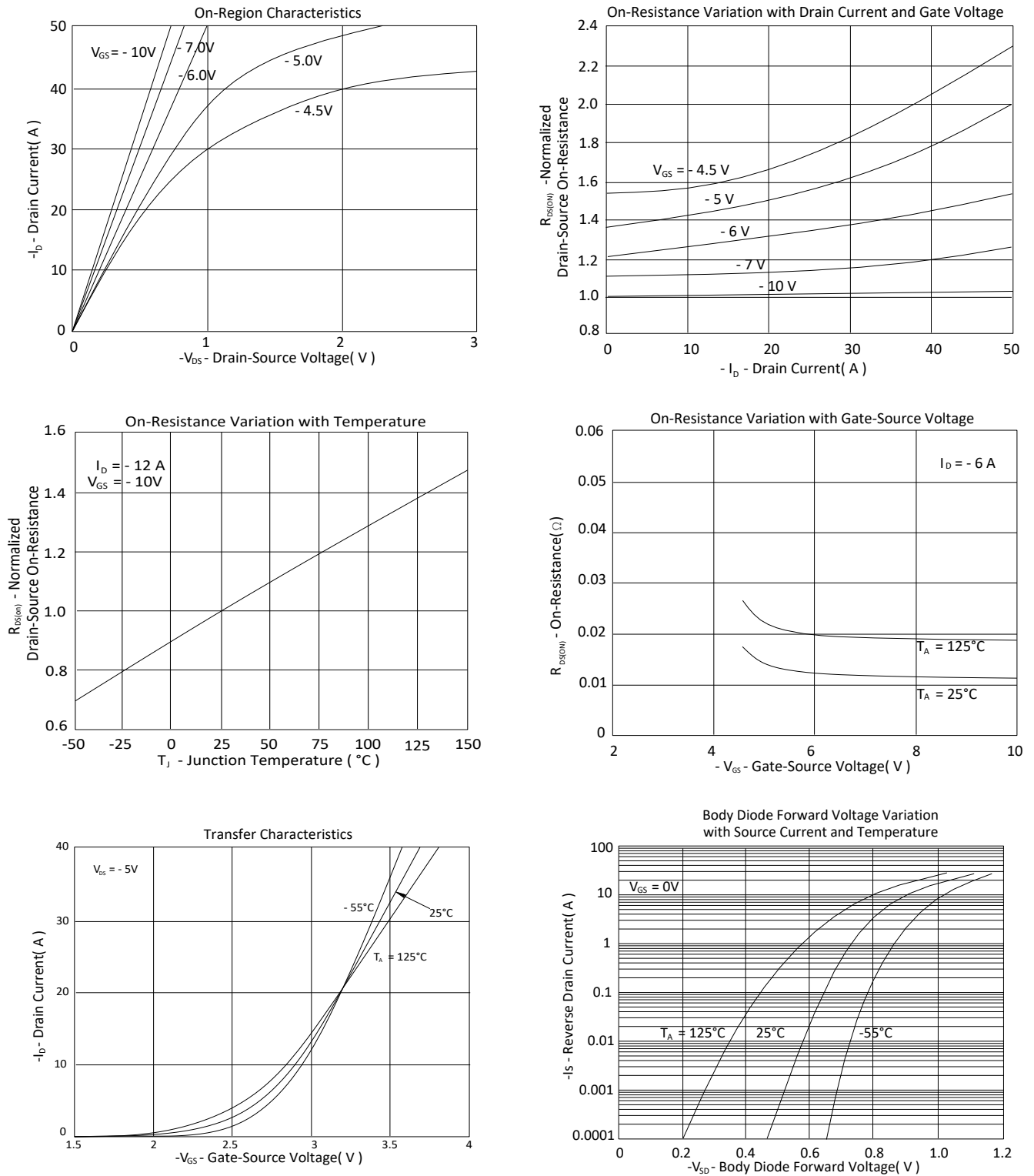
²Independent of operating temperature.

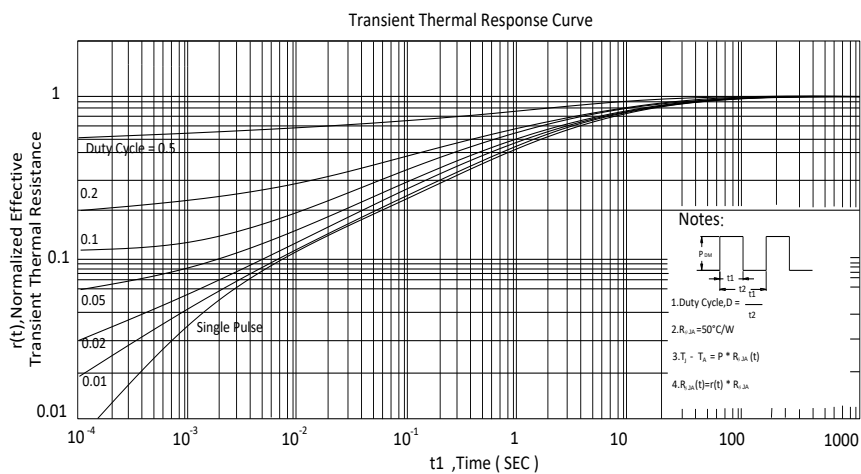
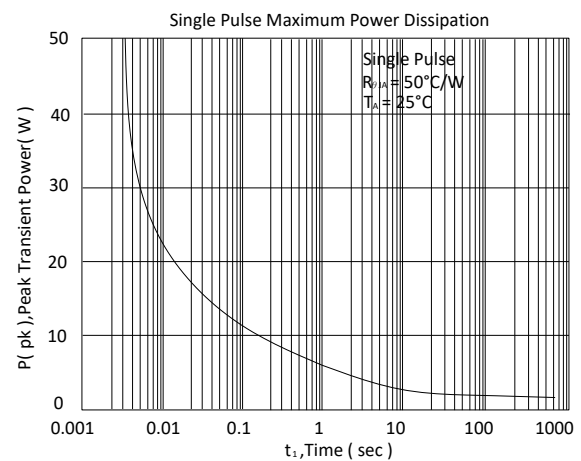
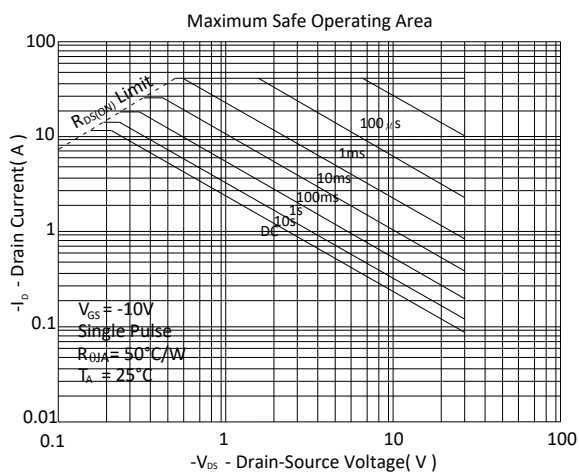
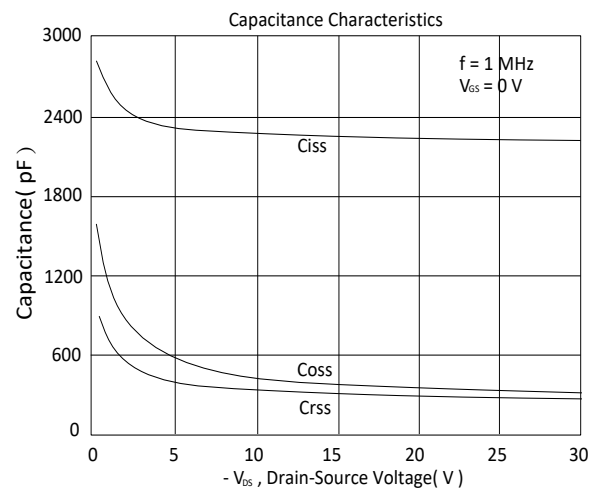
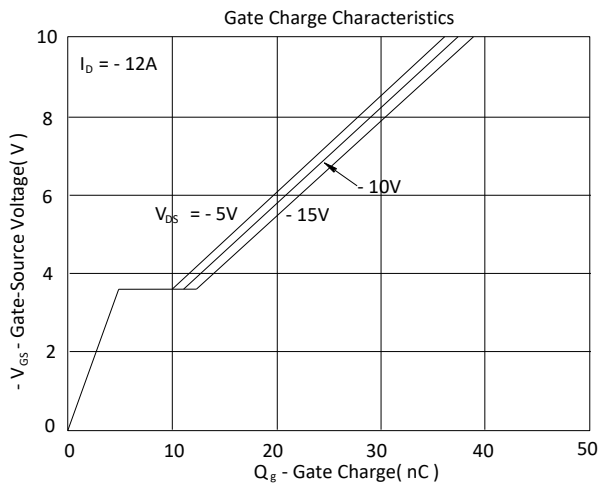
³Pulse width limited by maximum junction temperature.

EMC will review datasheet by quarter, and update new version.



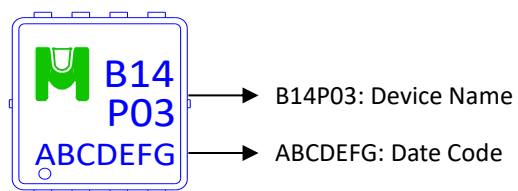
TYPICAL CHARACTERISTICS



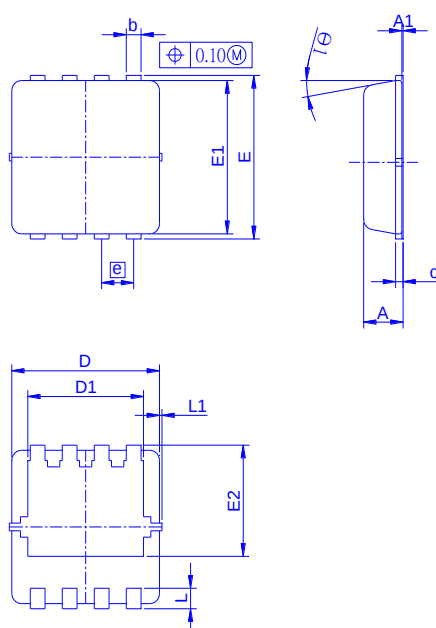


Ordering & Marking Information:

Device Name: EMB14P03V for EDFN3X3



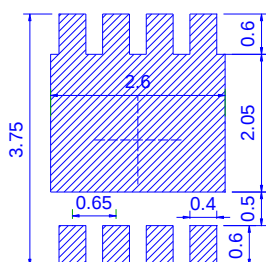
Outline Drawing



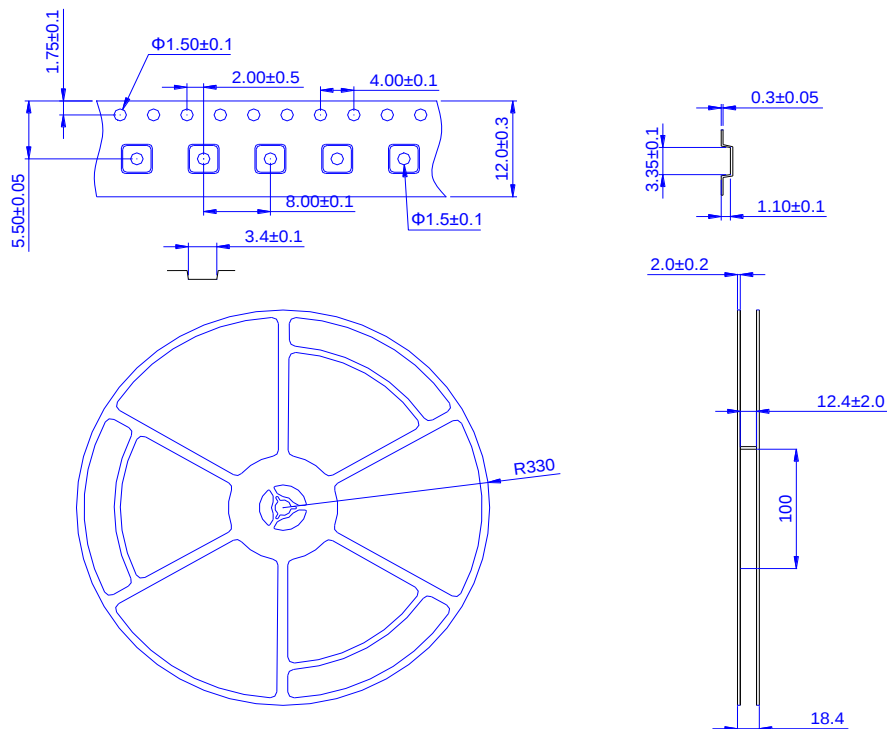
Dimension in mm

Dimension	A	A1	b	c	D	D1	E	E1	E2	e	L	L1	θ1
Min.	0.65	0	0.20	0.10	2.90	2.15	3.10	2.90	1.53	0.55	0.25	-	0°
Typ.	0.75	-	0.30	0.15	3.00	2.45	3.20	3.00	1.97	0.65	0.40	0.075	10°
Max.	0.90	0.05	0.40	0.25	3.30	2.74	3.50	3.30	2.59	0.75	0.60	0.150	14°

Recommended minimum pads



Tape&Reel Information: 5000pcs/Reel Carrier tape material : Plastic
 (Dimension in millimeter)



產品別	EDFN3X3
Reel 尺寸	13"
編帶方式	FEED DIRECTION
前空格	50
後空格	50
裝箱數	
滿捲數量	5K
捲/內盒比	1 : 1
內盒滿箱數	5K
內/外箱比	10 : 1
外箱滿箱數	50K