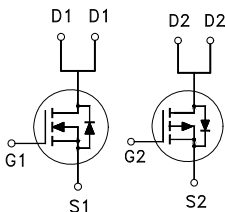
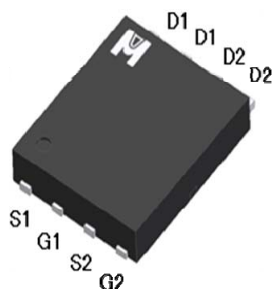


N & P-Channel Logic Level Enhancement Mode Field Effect Transistor

Product Summary:

	N-CH	P-CH
BV_{DSS}	30V	-30V
$R_{DS(on)} (MAX.)$	6.5m Ω	20m Ω
I_D	26A	-15A



UIS, Rg 100% Tested

Pb-Free Lead Plating & Halogen Free

ABSOLUTE MAXIMUM RATINGS ($T_C = 25^\circ\text{C}$ Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS		UNIT
Gate-Source Voltage		V _{GS}	N-CH	P-CH	V
			±20	±20	
Continuous Drain Current	T _C = 25 °C	I _D	26	-15	A
	T _C = 100 °C		15	-9	
Pulsed Drain Current ¹		I _{DM}	100	-60	
Avalanche Current		I _{AS}	25	-20	
Avalanche Energy	L = 0.1mH, ID=15A, RG=25Ω (N) L = 0.1mH, ID=-10A, RG=25Ω (P)	E _{AS}	11.25	5	mJ
Repetitive Avalanche Energy ²	L = 0.05mH	E _{AR}	5.6	2.5	
Power Dissipation	T _C = 25 °C	P _D	25		W
	T _C = 100 °C		10		
Power Dissipation	T _A = 25 °C	P _D	2		W
	T _A = 70 °C		1.28		
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	$R_{\theta JC}$		5	$^\circ\text{C} / \text{W}$
Junction-to-Ambient ³	$R_{\theta JA}$		62.5	

¹Pulse width limited by maximum junction temperature.

²Duty cycle $\leq 1\%$

³62.5°C / W when mounted on a 1 in² pad of 2 oz copper.

ELECTRICAL CHARACTERISTICS ($T_c = 25^\circ\text{C}$, 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	N-CH	30			V
		V _{GS} = 0V, I _D = -250μA	P-CH	-30			
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	N-CH	1	1.5	3	
		V _{DS} = V _{GS} , I _D = -250μA	P-CH	-1	-1.5	-3	
Gate-Body Leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±20V	N-CH			±100	nA
		V _{DS} = 0V, V _{GS} = ±20V	P-CH			±100	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 24V, V _{GS} = 0V	N-CH			1	μA
		V _{DS} = -24V, V _{GS} = 0V	P-CH			-1	
		V _{DS} = 20V, V _{GS} = 0V, T _J = 125 °C	N-CH			25	
		V _{DS} = -20V, V _{GS} = 0V, T _J = 125 °C	P-CH			-25	
On-State Drain Current ¹	I _{D(ON)}	V _{DS} = 10V, V _{GS} = 10V	N-CH	26			A
		V _{DS} = -5V, V _{GS} = -10V	P-CH	-15			
Drain-Source On-State Resistance ¹	R _{DS(ON)}	V _{GS} = 10V, I _D = 20A	N-CH		5.2	6.5	mΩ
		V _{GS} = -10V, I _D = -15A	P-CH		17	20	
		V _{GS} = 4.5V, I _D = 15A	N-CH		7.0	9.5	
		V _{GS} = -4.5V, I _D = -10A	P-CH		28.5	37	
Forward Transconductance ¹	g _{fs}	V _{DS} = 5V, I _D = 20A	N-CH		22		S
		V _{DS} = -5V, I _D = -10A	P-CH		24		
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		2300		pF
Output Capacitance	C _{oss}		P-CH		1928		
			N-CH		342		
			P-CH		210		
			N-CH		218		
Reverse Transfer Capacitance	C _{rss}		P-CH		193		

Gate Resistance	R _g	V _{GS} = 15mV, V _{DS} = 0V, f = 1MHz	N-CH		3.3		Ω
			P-CH		4.5		
Total Gate Charge ^{1,2}	Q _g (V _{GS} =10V) Q _g (V _{GS} =-10V)	N-CH V _{DS} = 15V, V _{GS} = 10V, I _D = 20A P-CH V _{DS} = -15V, V _{GS} = -10V, I _D = -15A	N-CH		34		nC
	Q _g (V _{GS} =4.5V) Q _g (V _{GS} =-4.5V)		P-CH		31		
			N-CH		17		
			P-CH		15		
Gate-Source Charge ^{1,2}	Q _{gs}		N-CH		6.0		
			P-CH		4.4		
Gate-Drain Charge ^{1,2}	Q _{gd}		N-CH		7.7		
			P-CH		6.5		
Turn-On Delay Time ^{1,2}	t _{d(on)}	N-CH V _{DS} = 15V, I _D = 1A, V _{GS} = 10V, R _{GS} = 6Ω P-CH V _{DS} = -15V, I _D = -1A, V _{GS} = -10V, R _{GS} = 6Ω	N-CH		15		nS
			P-CH		10		
Rise Time ^{1,2}	t _r		N-CH		20		
			P-CH		15		
Turn-Off Delay Time ^{1,2}	t _{d(off)}		N-CH		25		
			P-CH		25		
Fall Time ^{1,2}	t _f		N-CH		25		
			P-CH		10		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T _c = 25 °C)							
Continuous Current	I _S		N-CH			2.3	A
			P-CH			-2.3	
Pulsed Current ³	I _{SM}		N-CH			9.2	
			P-CH			-9.2	
Forward Voltage ¹	V _{SD}	I _F = I _S , V _{GS} = 0V	N-CH			1.2	V
			P-CH			-1.2	
Reverse Recovery Time	t _{rr}	I _F = I _S , dI _F /dt = 100A / μS	N-CH		28		nS
			P-CH		32		
Reverse Recovery Charge	Q _{rr}		N-CH		18		nC
			P-CH		26		

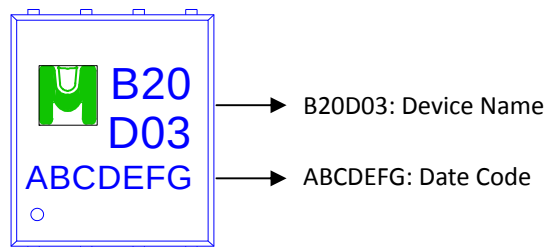
¹Pulse test : Pulse Width $\leq 300 \mu sec$, Duty Cycle $\leq 2\%$.

²Independent of operating temperature.

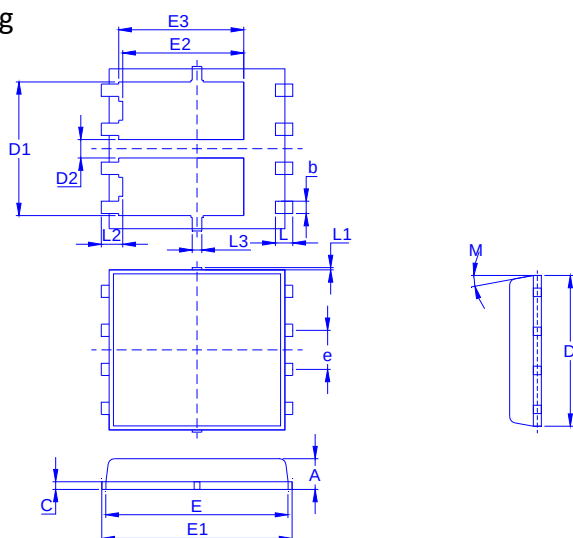
³Pulse width limited by maximum junction temperature.

Ordering & Marking Information:

Device Name: EMB20D03H for EDFN 5 x 6



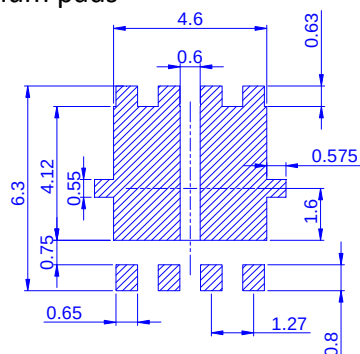
Outline Drawing



Dimension in mm

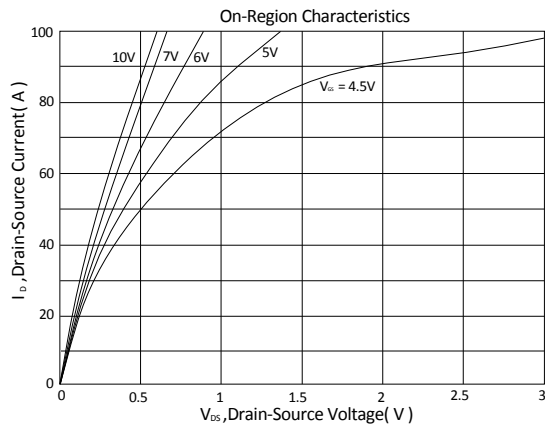
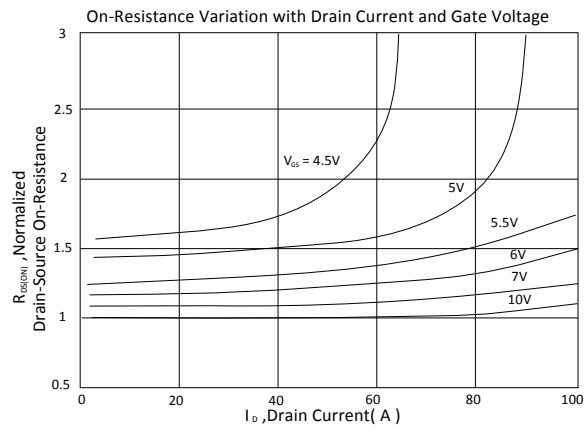
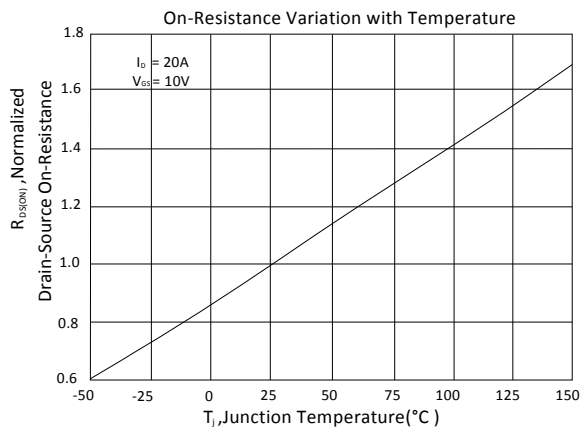
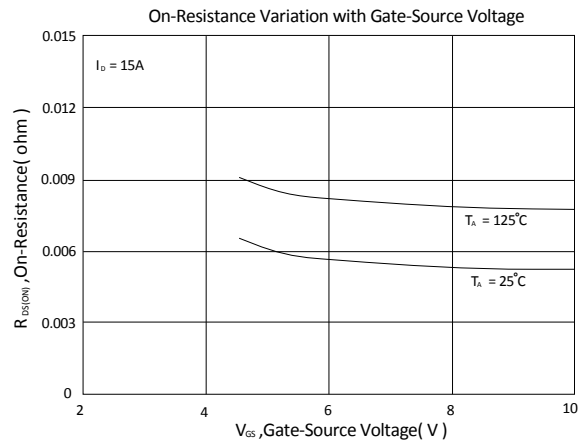
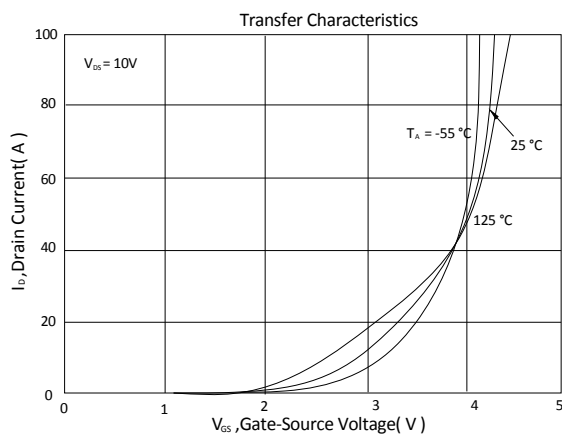
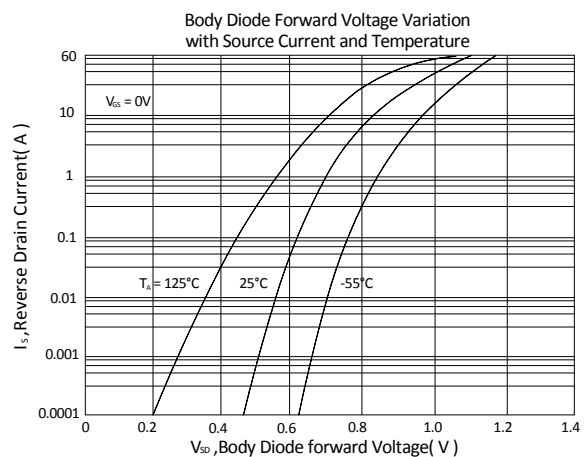
Dimension	A	A1	b	c	D	D1	D2	E	E1	E2	E3	e	L	L1	L2	L3	M
Min.	0.85	0.00	0.30	0.15			0.5						0.45	0			0°
Typ.	0.95		0.40	0.2	5.2	4.35	0.6	5.55	6.05	3.82	3.946	1.27	0.55		0.68	0.3	
Max.	1.00	0.05	0.50	0.25			0.75						0.65	0.15			10°

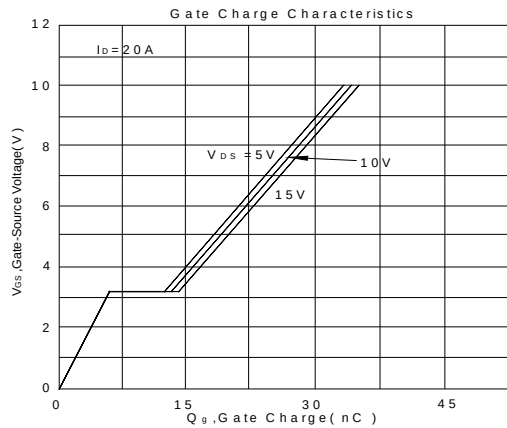
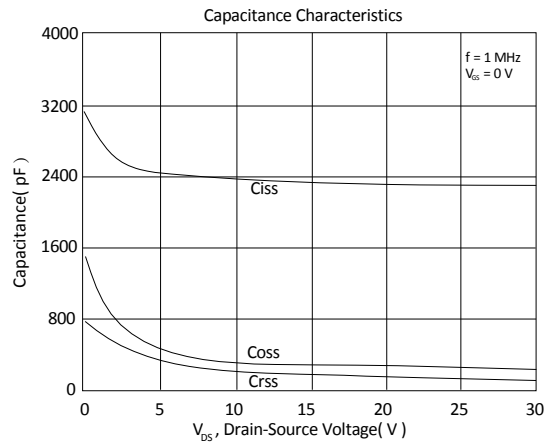
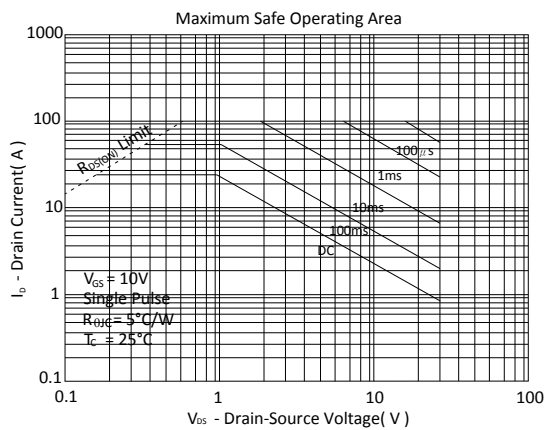
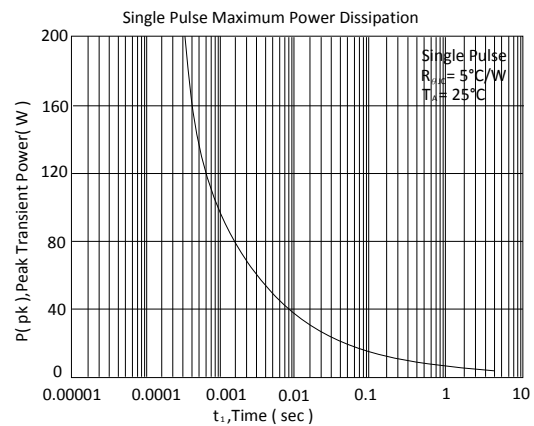
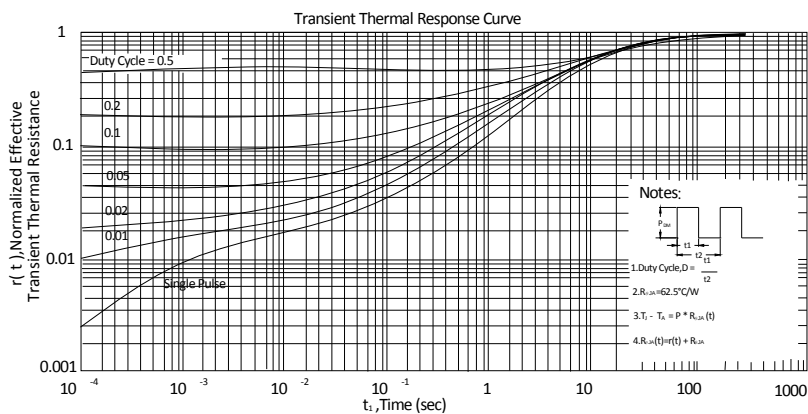
Recommended minimum pads





N-Channel







P-Channel

