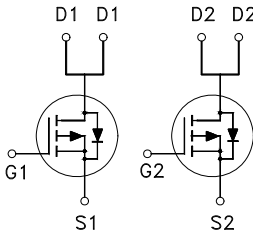
杰力科技股份有限公司
Excelliance MOS Corporation

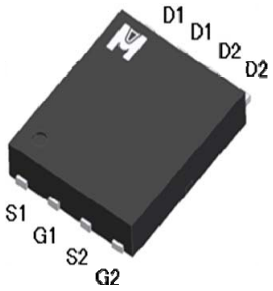
EMB07B03H

Dual P-Channel Logic Level Enhancement Mode Field Effect Transistor

Product Summary:

BV_{DSS}	-30V
$R_{DSON\ (MAX.)}$	7.8mΩ
I_D	-24A





UIS, Rg 100% Tested

Pb-Free Lead Plating & Halogen Free

ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNIT
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_C = 25 °C	I_D	-24	A
	T_A= 25 °C(t≦10s)		-14	
	T_A= 25 °C(Steady-State)		-10	
	T_C = 100 °C		-17	
Pulsed Drain Current[1]		I_{DM}	-96	
Avalanche Current		I_{AS}	-25	
Avalanche Energy	L = 0.1mH, I_{AS}=-25A, RG=25Ω	E_{AS}	31	mJ
Repetitive Avalanche Energy[2]	L = 0.05mH	E_{AR}	15	
Power Dissipation	T_C = 25 °C	P_D	25	W
	T_C = 100 °C		10	
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	°C / W
Junction-to-Ambient[3]	t ≦ 10s	$R_{\theta JA}$		45	
Junction-to-Ambient[3]	Steady-State	$R_{\theta JA}$		80	

[1]Pulse width limited by maximum junction temperature.

[2]Duty cycle ≤ 1%

[3]80°C / W when mounted on a 1 in^2 pad of 2 oz copper.

ELECTRICAL CHARACTERISTICS (T_J = 25 °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	-3.0	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±20V			±100	nA
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	-24			A
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = -10V, I_D = -20A		6.8	7.8	mΩ
		V_{GS} = -4.5V, I_D = -15A		8.8	11.5	
Forward Transconductance[1]	g_{fs}	V_{DS} = -5V, I_D = -15A		24		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = -15V, f = 1MHz		3270		pF
Output Capacitance	C_{oss}			483		
Reverse Transfer Capacitance	C_{rss}			477		
Gate Resistance	R_g	V_{GS} = 15mV, V_{DS} = 0V, f = 1MHz		3.0		Ω
Total Gate Charge[1,2]	Q_g	V_{DS} = -15V, V_{GS} = -10V, I_D = -15A		60.3		nC
Gate-Source Charge[1,2]	Q_{gs}			6.8		
Gate-Drain Charge[1,2]	Q_{gd}			15		
Turn-On Delay Time[1,2]	$t_{d(on)}$	V_{DS} = -15V, I_D = -1A, V_{GS} = -10V, R_{GS} = 2.7Ω		18		nS
Rise Time[1,2]	t_r			26		
Turn-Off Delay Time[1,2]	$t_{d(off)}$			22		
Fall Time[1,2]	t_f			75		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_C = 25 °C)						
Continuous Current	I_S				-24	A
Pulsed Current[3]	I_{SM}				-96	
Forward Voltage[1]	V_{SD}	I_F = -15A, V_{GS} = 0V			-1.2	V
Reverse Recovery Time	t_{rr}	I_F = I_S, dI_F/dt = 100A / μS		55		nS
Reverse Recovery Charge	Q_{rr}			62		nC

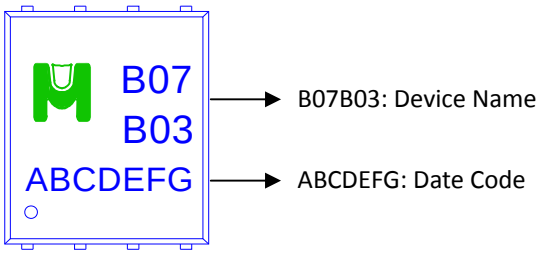
[1]Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

[2]Independent of operating temperature.

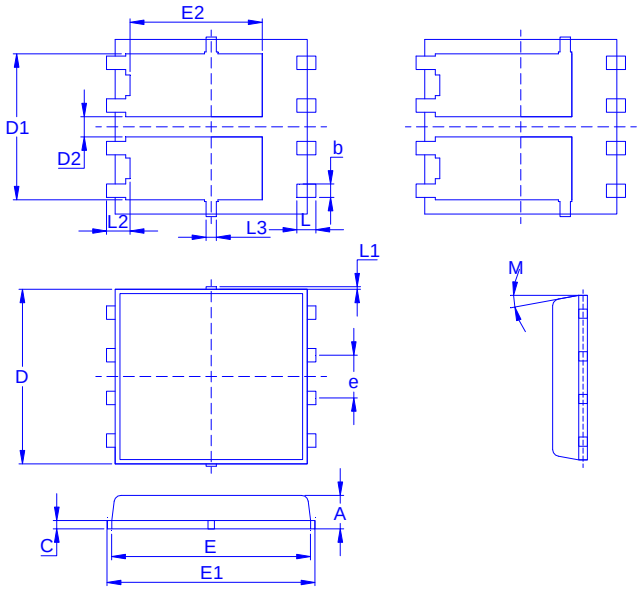
[3]Pulse width limited by maximum junction temperature.

Ordering & Marking Information:

Device Name: EMB07B03H for EDFN 5 x 6



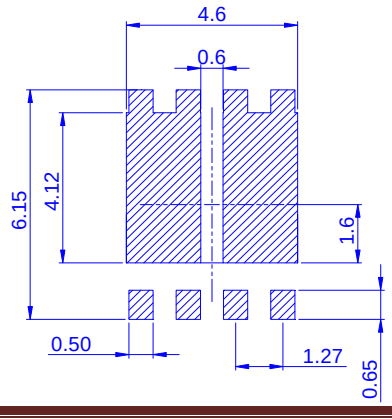
Outline Drawing



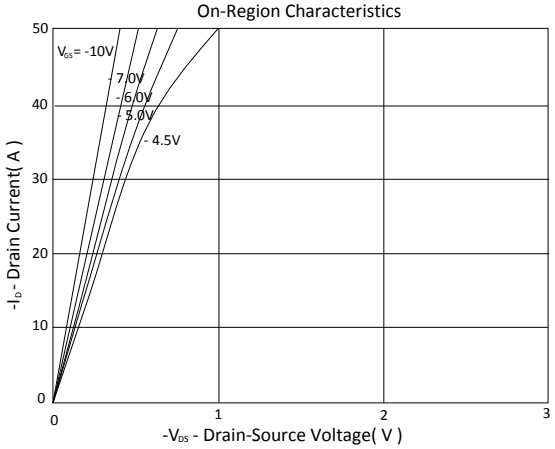
Dimension in mm

Dimension	A	b	c	D	D1	D2	E	E1	E2	e	L	L1	L2	M
Min.	0.85	0.3	0.15	4.8	3.41	0.47	5.65	5.95	3.30		0.38	0	0.38	0°
Typ.	1.01	0.4	0.2	5	4.01	0.67	5.75	6.05	3.43	1.27	0.55	0.09	0.48	
Max.	1.17	0.5	0.25	5.2	4.61	0.87	5.85	6.15	3.58		0.71	0.18	0.58	12°

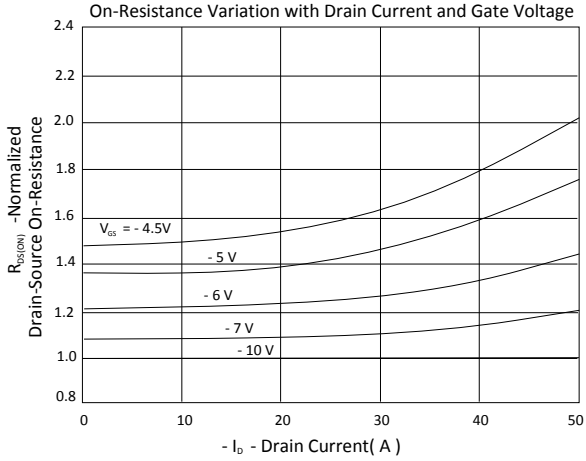
Recommended minimum pads



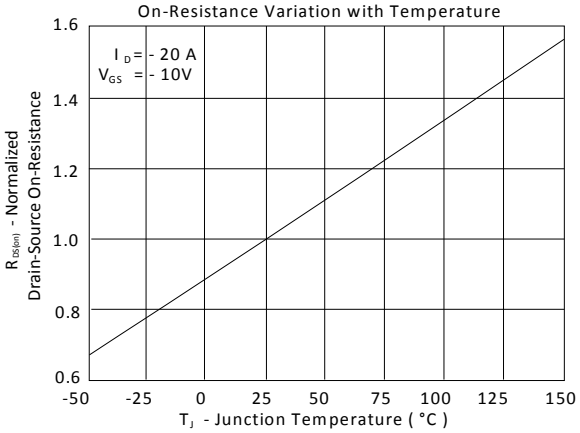
On-Region Characteristics



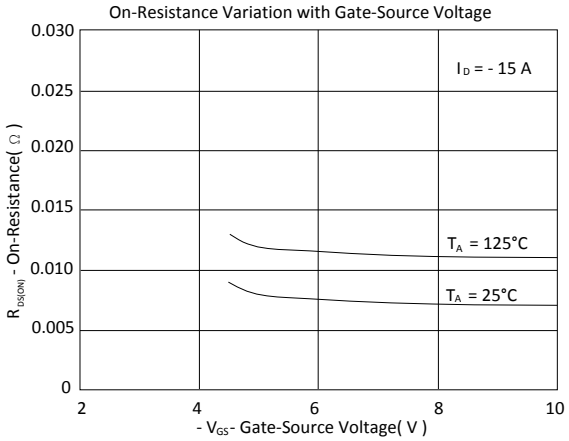
On-Resistance Variation with Drain Current and Gate Voltage



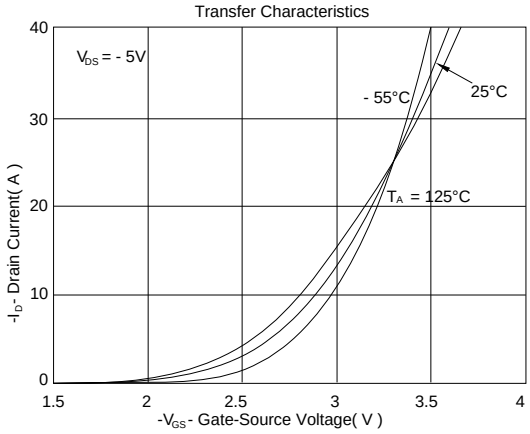
On-Resistance Variation with Temperature



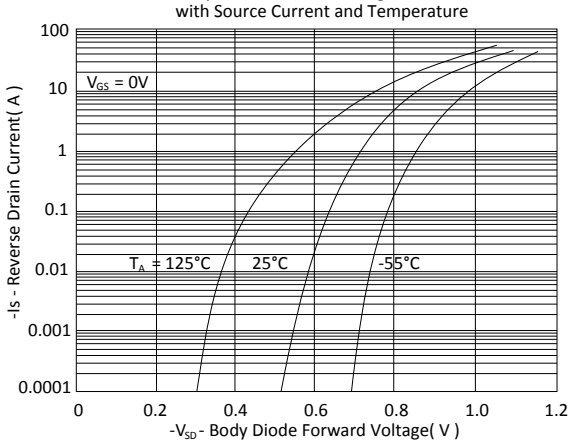
On-Resistance Variation with Gate-Source Voltage

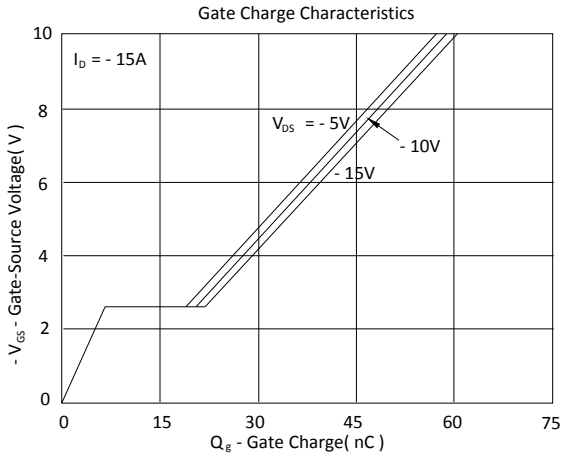


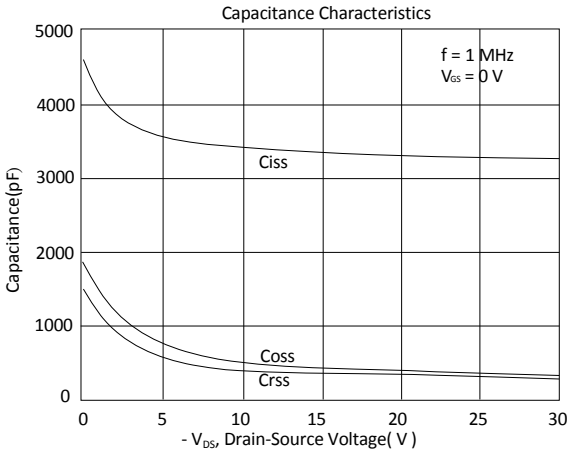
Transfer Characteristics

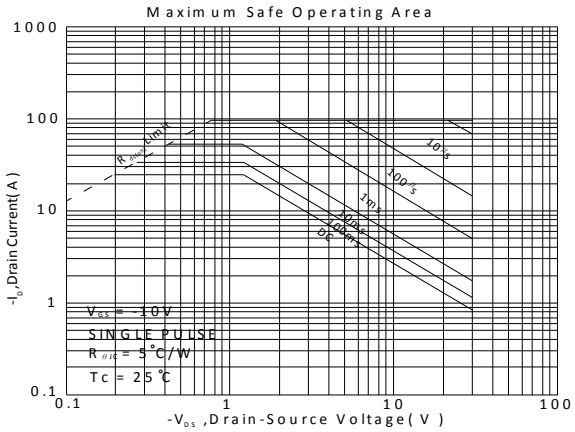


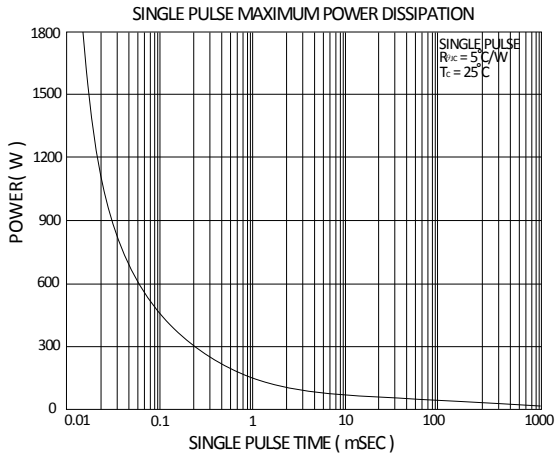
Body Diode Forward Voltage Variation
with Source Current and Temperature

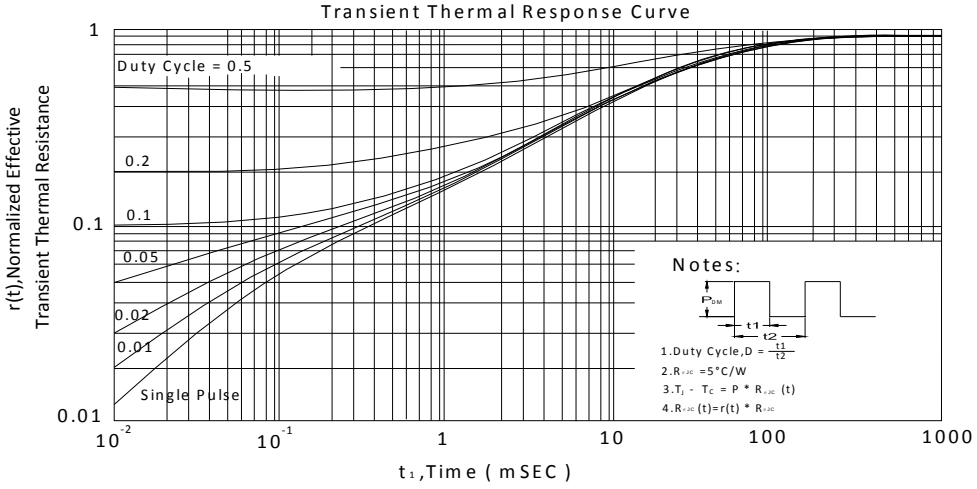



Gate Charge Characteristics
I_D = - 15A
V_{DS} = - 5V
- 10V
- 15V
- V_{GS} - Gate-Source Voltage(V)
Q_g - Gate Charge(nC)


Capacitance Characteristics
f = 1 MHz
V_{GS} = 0 V
Ciss
Coss
Crss
Capacitance(pF)
- V_{DS}, Drain-Source Voltage(V)


Maximum Safe Operating Area
V_{GS} = - 10 V
SINGLE PULSE
$R_{\theta JC}$ = 5 °C/W
Tc = 25 °C
-I_D,Drain Current(A)
-V_{DS} ,Drain-Source Voltage(V)


SINGLE PULSE MAXIMUM POWER DISSIPATION
SINGLE PULSE
$R_{\theta JC}$ = 5 °C/W
Tc = 25 °C
POWER(W)
SINGLE PULSE TIME (mSEC)


Transient Thermal Response Curve
Duty Cycle = 0.5
0.2
0.1
0.05
0.02
0.01
Single Pulse
Notes:
1.Duty Cycle,D = t1/t2
2.$R_{\theta JC}$ =5°C/W
3.T_J - T_C = P * $R_{\theta JC}$ (t)
4.$R_{\theta JC}$ (t)=r(t) * $R_{\theta JC}$
r(t),Normalized Effective Transient Thermal Resistance
t_1,Time (mSEC)