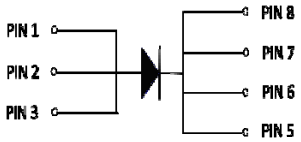
High Current Density Trench Barrier Schottky Rectifier

Product Summary:

V_{RRM}	60V
V_F @ I_F=20A	0.4V
$I_{F(AV)}$	20A



Trench Schottky Technology

Pb-Free Lead Plating & Halogen Free

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

PARAMETERS/TEST CONDITIONS	SYMBOL	LIMITS	UNIT
Maximum Repetitive Peak Reverse Voltage	V_{RRM}	60	V
Maximum Average Forward Rectified Current	$I_{F(AV)}$	20	A
Peak Forward Surge Current 8.3mS Single Half Sine-wave Superimposed on Rated Load per Diode	I_{FSM}	300	
Operating Junction & Storage Temperature Range	T_j, T_{stg}	-40 to 150	°C

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNIT
Junction-to-Case	$R_{\theta JC}$		2.5	°C / W
Junction-to-Ambient	$R_{\theta JA}$		50	

[1]Pulse width limited by maximum junction temperature.

[2]Duty cycle ≤ 1%

ELECTRICAL CHARACTERISTICS (T_A = 25 °C, Unless Otherwise Noted)

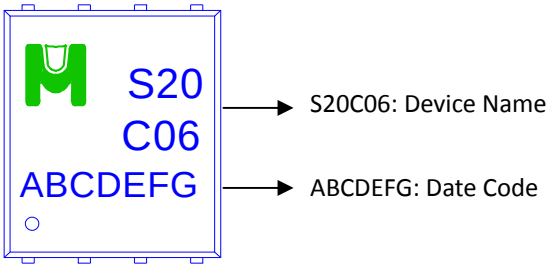
PARAMETER	SYMBOL	TEST CONDITIONS		LIMITS			UNIT
				MIN	TYP	MAX	
Breakdown Voltage	V_{BR}	I_R=1.0mA		60			V
Instantaneous Forward Voltage per Diode	V_F[1]	I_F=10A	T_A = 25 °C		0.40		V
		I_F=20A			0.46	0.50	
		I_F=10A	T_A = 125 °C		0.35		
		I_F=20A			0.40	0.45	
Reverse Current per Diode	I_R[2]	V_R = 60V	T_A = 25 °C		70	300	uA
			T_A = 125 °C		30	80	mA

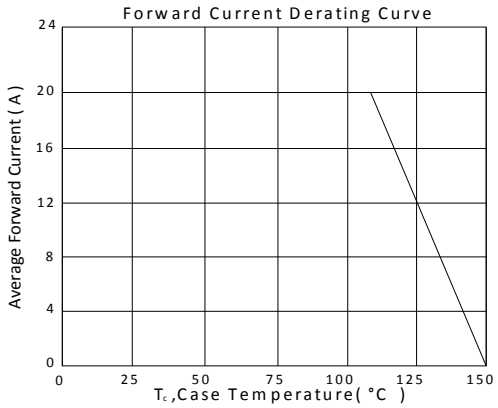
[1]Pulse test : 300 μs Pulse Width, 1% Duty Cycle.

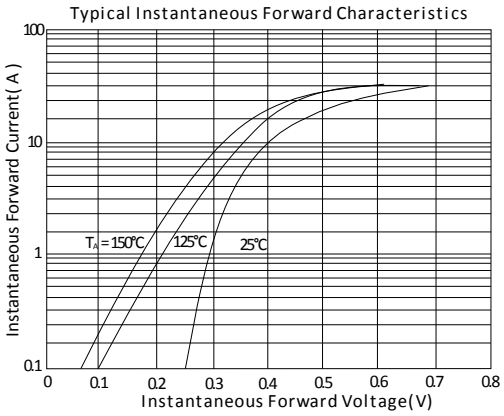
[2]Pulse Width ≤ 40ms.

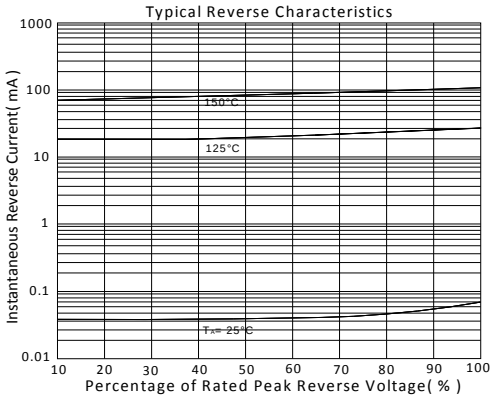
Ordering & Marking Information:

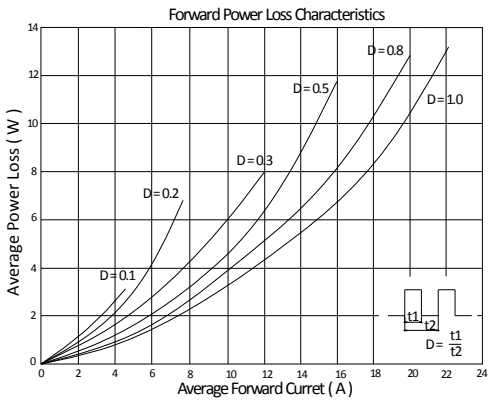
Device Name: EMS20C06HC for EDFN 5 x 6

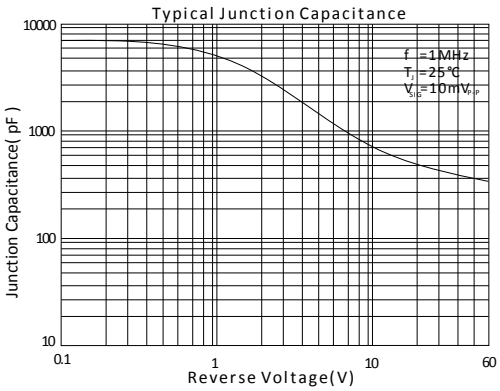


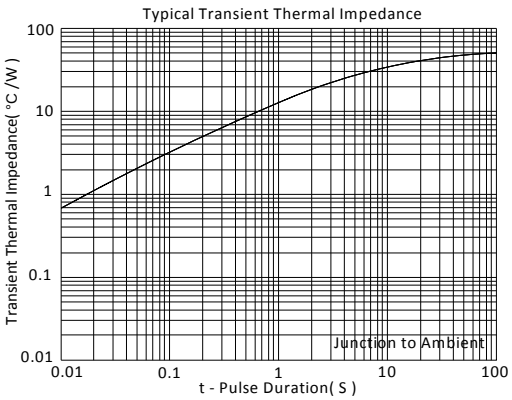

Forward Current Derating Curve
Average Forward Current (A)
24
20
16
12
8
4
0
0
25
50
75
100
125
150
Tc ,Case Temperature(°C)


Typical Instantaneous Forward Characteristics
Instantaneous Forward Current(A)
100
10
1
0.1
TA = 150°C
125°C
25°C
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
Instantaneous Forward Voltage(V)

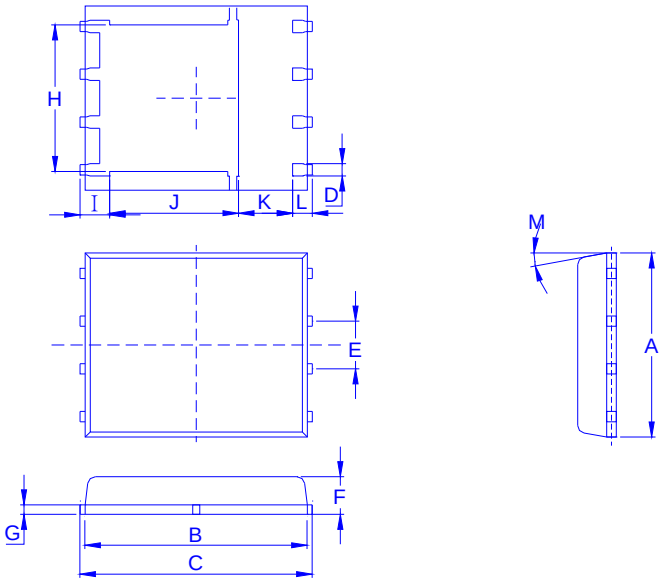

Typical Reverse Characteristics
Instantaneous Reverse Current(mA)
1000
100
10
1
0.1
0.01
150°C
125°C
TA= 25°C
10
20
30
40
50
60
70
80
90
100
Percentage of Rated Peak Reverse Voltage(%)


Forward Power Loss Characteristics
Average Power Loss (W)
14
12
10
8
6
4
2
0
D=0.8
D=0.5
D=1.0
D=0.3
D=0.2
D=0.1
t1
t2
D= t1/t2
0
2
4
6
8
10
12
14
16
18
20
22
24
Average Forward Curret (A)


Typical Junction Capacitance
Junction Capacitance(pF)
10000
1000
100
10
f =1MHz
TJ =25°C
VSIG=10mVp-p
0.1
1
10
60
Reverse Voltage(V)


Typical Transient Thermal Impedance
Transient Thermal Impedance(°C /W)
100
10
1
0.1
0.01
Junction to Ambient
0.01
0.1
1
10
100
t - Pulse Duration(S)

Outline Drawing



Dimension in mm

Dimension	A	B	C	D	E	F	G	H	I	J	K	L	M
Min.	4.80	5.50	5.90	0.3		0.85	0.15	3.67	0.41	3.00	0.94	0.45	0°
Typ.					1.27								
Max.	5.30	5.90	6.15	0.51		1.20	0.30	4.54	0.85	3.92	1.7	0.71	12°

Recommended minimum pads