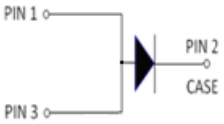
杰力科技股份有限公司
Excelliance MOS Corporation

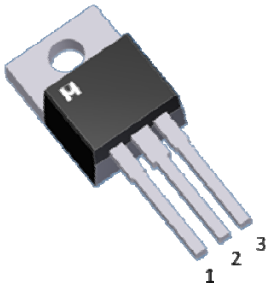
EMS10C10E

High-Voltage Trench Barrier Schottky Rectifier

Product Summary:

V_{RRM}	100V
V_F @ I_F=10A	0.58V
$I_{F(AV)}$	10A





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}	100	V
Maximum Average Forward Rectified Current	$I_{F(AV)}$	10	A
Peak Forward Surge Current 8.3mS Single Half Sine-wave Superimposed on Rated Load per Diode	I_{FSM}	150	
Peak Repetitive Reverse Current @ t_p = 2 µs, 1 kHz, T_J = 38 °C ± 2 °C per Diode	I_{RRM}	1	
Non-repetitive Avalanche Energy @ T_J = 25 °C, L = 60 mH per Diode	E_{AS}	150	mJ
Voltage rate of change (rated V_R)	dV/dt	10000	V/µs
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	$R_{\theta JC}$		2.8	°C / W

[1]Pulse width limited by maximum junction temperature.

[2]Duty cycle ≤ 1%

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

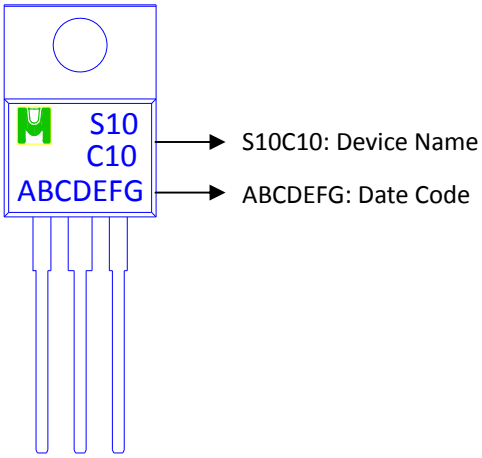
PARAMETER	SYMBOL	TEST CONDITIONS		LIMITS			UNIT
				MIN	TYP	MAX	
Breakdown Voltage	V_{BR}	I_R=1.0mA		100			V
Instantaneous Forward Voltage per Diode	V_F[1]	I_F=5A	T_A = 25 °C		0.54		V
		I_F=10A			0.67	0.77	
		I_F=5A	T_A = 125 °C		0.50		
		I_F=10A			0.58	0.68	
Reverse Current per Diode	I_R[2]	V_R = 70V	T_A = 25 °C		5		uA
			T_A = 125 °C		6		mA
		V_R = 100V	T_A = 25 °C		15	100	uA
			T_A = 125 °C		15	35	mA

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

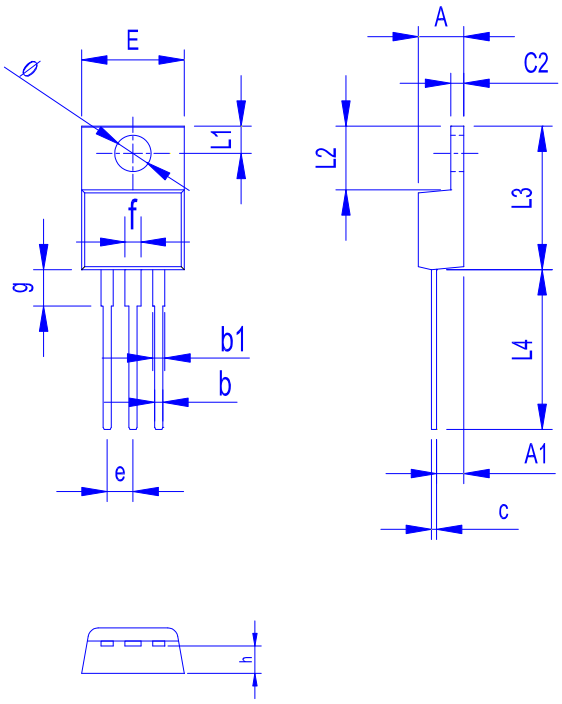
[2]Pulse Width ≤ 40ms.

Ordering & Marking Information:

Device Name: EMS10C10E for TO-220

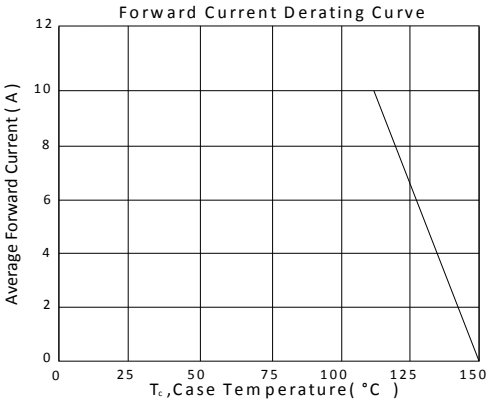


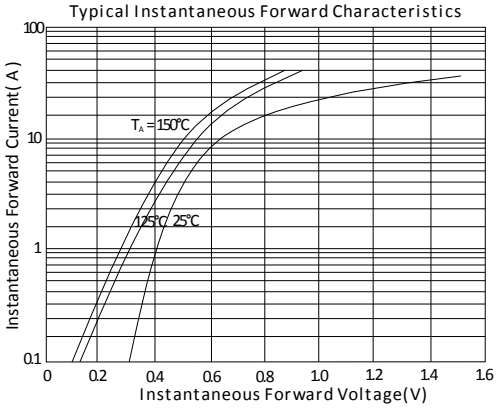
Outline Drawing

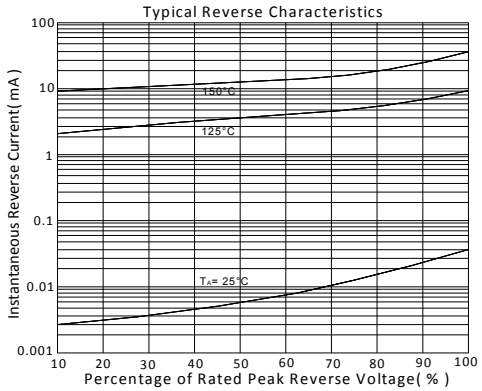


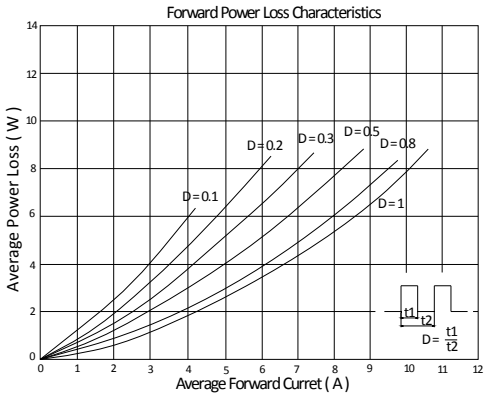
Dimension in mm

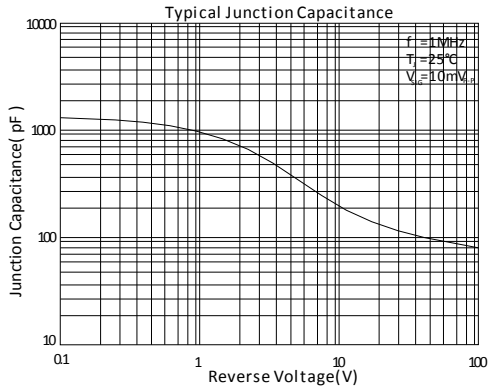
Dimension	A	b	b1	c	c2	E	L1	L2	L3	L4	ø	e	f	g	h
Min.	4.20	0.70	0.90	0.30	1.10	9.80	2.55	6.10	14.80	13.50	3.40	2.35	1.30	3.40	2.40
Max.	4.80	1.10	1.50	0.70	1.50	10.50	2.85	6.50	15.40	14.50	3.80	2.75	1.90	3.80	3.00

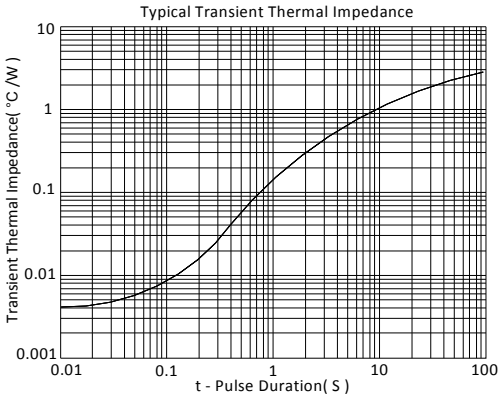

Forward Current Derating Curve
Average Forward Current (A)
12
10
8
6
4
2
0
0
25
50
75
100
125
150
Tc ,Case Temperature(°C)


Typical Instantaneous Forward Characteristics
Instantaneous Forward Current(A)
100
10
1
0.1
TA =150°C
125°C
25°C
0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
Instantaneous Forward Voltage(V)


Typical Reverse Characteristics
Instantaneous Reverse Current(mA)
100
10
1
0.1
0.01
0.001
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=0.2
D=0.3
D=0.5
D=0.8
D=0.1
D=1
t1
t2
D= t1/t2
0
1
2
3
4
5
6
7
8
9
10
11
12
Average Forward Curret (A)


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


Typical Transient Thermal Impedance
Transient Thermal Impedance(°C /W)
10
1
0.1
0.01
0.001
0.01
0.1
1
10
100
t - Pulse Duration(S)