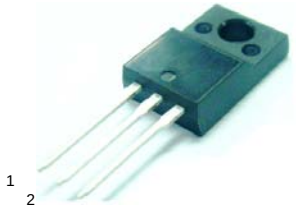
TAK CHEONG®

SEMICONDUCTOR

10A SCHOTTKY BARRIER DIODE

Full Pack High Voltage Schottky Rectifier



TO-220FP

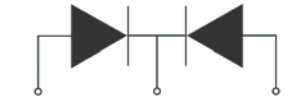
Specification Features:

- High Voltage Wide Range Selection, 100V, 150V & 200V
- High Switching Speed Device
- Low Forward Voltage Drop
- Low Power Loss and High Efficiency
- Guard Ring for Over-voltage Protection
- High Surge Capability
- RoHS Compliant
- Matte Tin(Sn) Lead Finish
- Terminal Leads Surface is Corrosion Resistant and can withstand to 260°C Wave Soldering or per MIL-STD-750, Method 2026.

DEVICE MARKING DIAGRAM

L = Tak Cheong Logo
xxyy = Monthly Date Code
Line 2 = MBRF
Line 3 = 10xxxCT
Line 4 = Polarity

POLARITY CONFIGURATION



MAXIMUM RATINGS (Per Leg, unless otherwise specified)

Symbol	Parameter	MBRF10100CT	MBRF10150CT	MBRF10200CT	Units
V_{RRM} V_{RWM} V_R	Maximum Repetitive Reverse Voltage Working Peak Reverse Voltage Maximum DC Reverse Voltage	100	150	200	V
$I_{F(AV)}$	Average Rectified Forward Current Per Leg Per Package		5 10		A
I_{FSM}	Non-repetitive Peak Forward Surge Current 8.3mS Single Phase @ Rated Load		80		A
T_{STG}	Storage Temperature Range		-65 to +150		°C
T_J	Operating Junction Temperature		+150		°C

These ratings are limiting values above which the serviceability of the diode may be impaired.

THERMAL CHARACTERISTIC

Symbol	Parameter	Value	Units
$R_{\theta JC}$	Maximum Thermal Resistance, Junction-to-Case	1.5	°C/W
$R_{\theta JA}$	Maximum Thermal Resistance, Junction-to-Ambient (per leg)	62.5	°C/W

ELECTRICAL CHARACTERISTICS (Per Leg) T_A = 25°C unless otherwise noted

Symbol	Parameter	Test Condition (Note 1)	MBRF10100CT		MBRF10150CT		MBRF10200CT		Units
			Min	Max	Min	Max	Min	Max	
I_R	Reverse Current	@ rated V_R	---	100	---	100	---	100	μA
V_F	Forward Voltage	I_F = 5A I_F = 10A	---	0.85 0.95	---	0.92 1.00	---	1.00 1.25	V

Note/s:
1. Tested under pulse condition of 300μS.

TYPICAL CHARACTERISTICS

Figure 1. Forward Current Derating Curve (Per Diode)

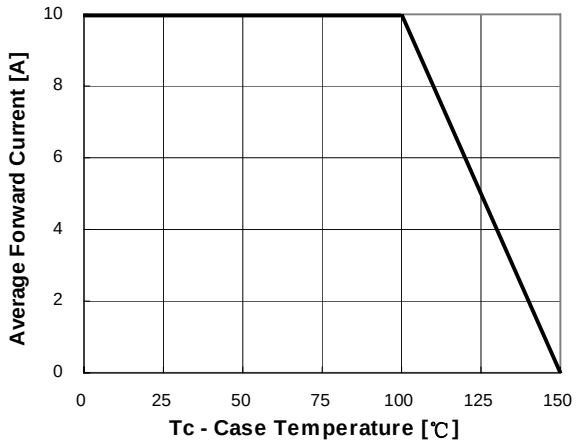


Figure 2. Junction Capacitance (Per Diode)

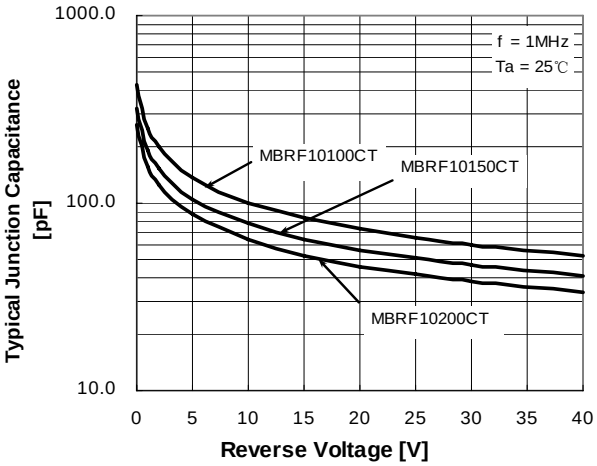


Figure 3. MBRF10100CTTypical Reverse Current (Per Diode)

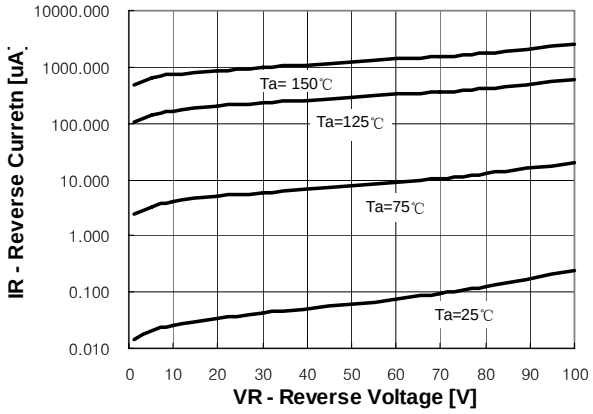


Figure 4. MBRF10150CTTypical Reverse Current (Per Diode)

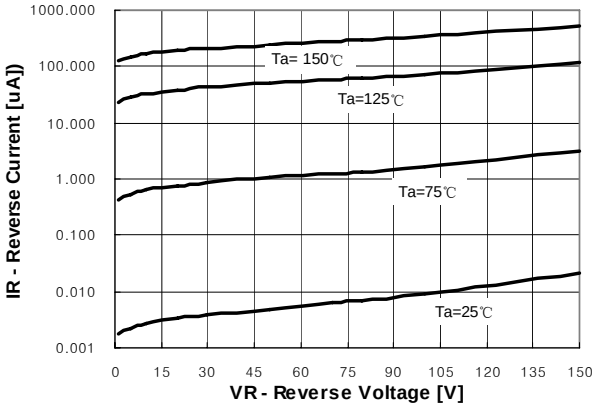


Figure 5. MBRF10200CTTypical Reverse Current (Per Diode)

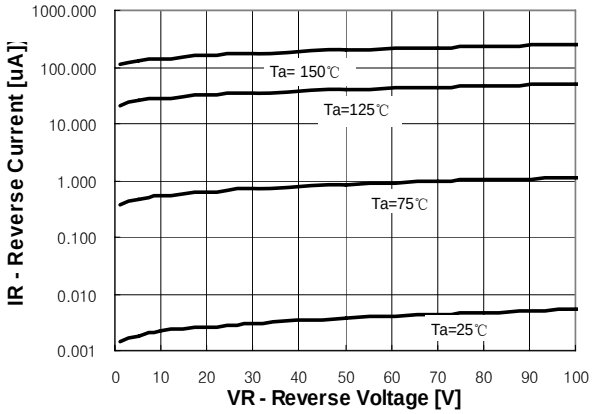


Figure 6. MBRF10100CT Typical Forward Voltage (Per Diode)

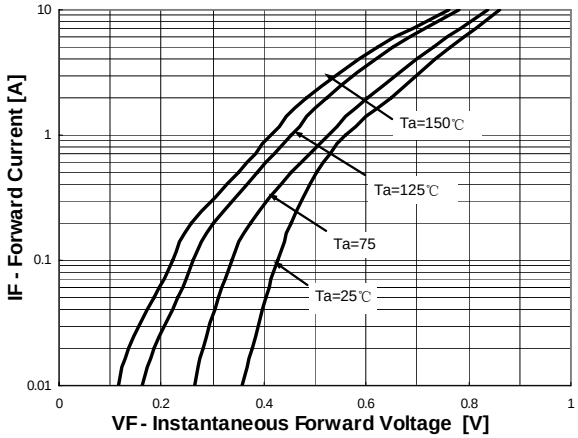


Figure 7. MBRF10150CT Typical Forward Voltage (Per Diode)

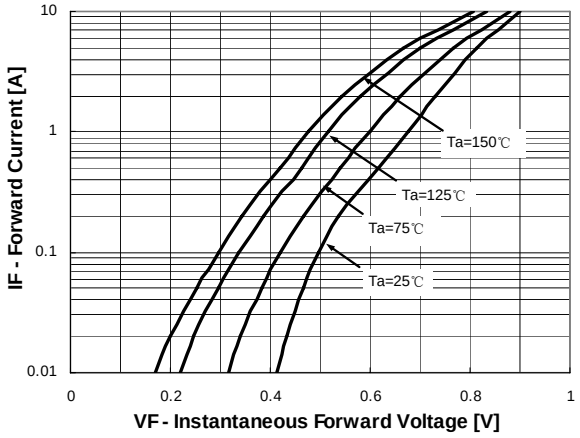
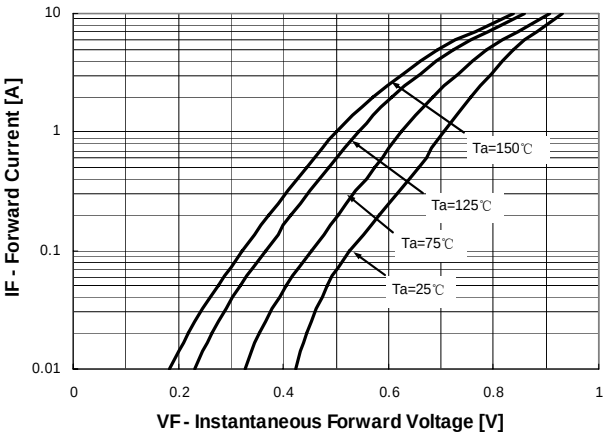
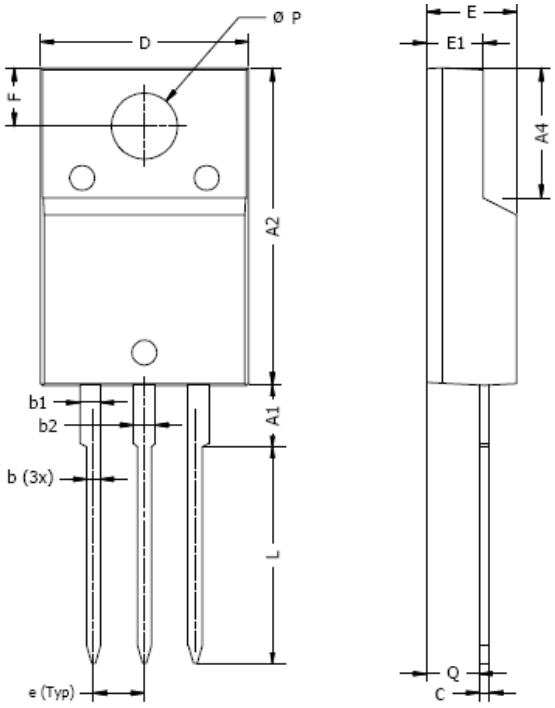


Figure 8. MBRF10200CT Typical Forward Voltage (Per Diode)



TO220FP SINGLE GAUGE PACKAGE OUTLINE



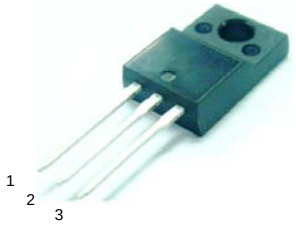
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A1	2.7	3.3	0.106	0.130
A2	15.0	15.7	0.591	0.618
A4	6.2	6.6	0.244	0.260
b	0.5	0.9	0.020	0.035
b1	0.9	1.2	0.035	0.047
b2	1.0	1.2	0.039	0.047
c	0.4	0.6	0.016	0.024
D	9.8	10.3	0.386	0.406
e	2.34	2.74	0.092	0.108
E	4.3	4.6	0.169	0.181
E1	2.5	2.9	0.098	0.114
F	2.6	3.0	0.102	0.118
L	10.3	10.7	0.406	0.421
ØP	3.0	3.4	0.118	0.134
Q	2.3	2.7	0.091	0.106

TAK CHEONG®

SEMICONDUCTOR

20A SCHOTTKY BARRIER DIODE

Full Pack High Voltage Schottky Rectifier

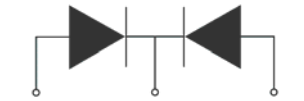


TO-220FP

DEVICE MARKING DIAGRAM

L = Tak Cheong Logo
xxyy = Monthly Date Code
Line 2 = MBRF
Line 3 = 20xxxCT
Line 4 = Polarity

POLARITY CONFIGURATION



Specification Features:

- High Voltage Wide Range Selection, 100V, 150V & 200V
- High Switching Speed Device
- Low Forward Voltage Drop
- Low Power Loss and High Efficiency
- Guard Ring for Over-voltage Protection
- High Surge Capability
- RoHS Compliant
- Matte Tin(Sn) Lead Finish
- Terminal Leads Surface is Corrosion Resistant and can withstand to 260°C Wave Soldering or per MIL-STD-750, Method 2026.

MAXIMUM RATINGS (Per Leg, unless otherwise specified)

Symbol	Parameter	MBRF20100CT	MBRF20150CT	MBRF20200CT	Units
V_{RRM} V_{RWM} V_R	Maximum Repetitive Reverse Voltage Working Peak Reverse Voltage Maximum DC Reverse Voltage	100	150	200	V
$I_{F(AV)}$	Average Rectified Forward Current Per Leg Per Package		10 20		A
I_{FSM}	Non-repetitive Peak Forward Surge Current 8.3mS Single Phase @ Rated Load		150		A
T_{STG}	Storage Temperature Range		-65 to +150		°C
T_J	Operating Junction Temperature		+150		°C

These ratings are limiting values above which the serviceability of the diode may be impaired.

THERMAL CHARACTERISTICS

T_A = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
$R_{\theta JC}$	Maximum Thermal Resistance, Junction-to-Case	2.0	°C/W
$R_{\theta JA}$	Maximum Thermal Resistance, Junction-to-Ambient (per leg)	60	°C/W

ELECTRICAL CHARACTERISTICS (Per Diode)

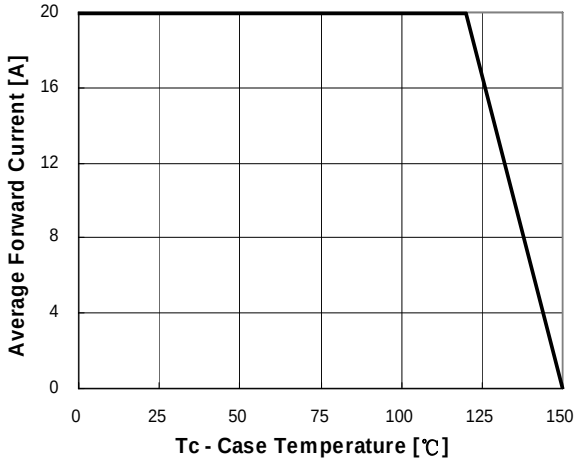
T_A = 25°C unless otherwise noted

Symbol	Parameter	Test Condition (Note 1)	MBRF20100CT		MBRF20150CT		MBRF20200CT		Units
			Min	Max	Min	Max	Min	Max	
I_R	Reverse Current	@ rated V_R	---	200	---	200	---	200	μA
V_F	Forward Voltage	I_F = 10A	---	0.85	---	0.92	---	1.00	V
		I_F = 20A		0.95		1.00		1.25	

Note/s:
1. Tested under pulse condition of 300μS.

TYPICAL CHARACTERISTICS

Figure 1. Forward Current Derating Curve (Per Diode)



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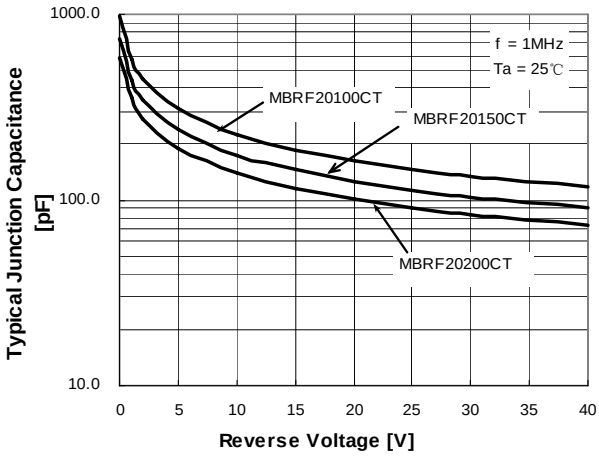


Figure 3. MBRF20100CT Typical Reverse Current (Per Diode)

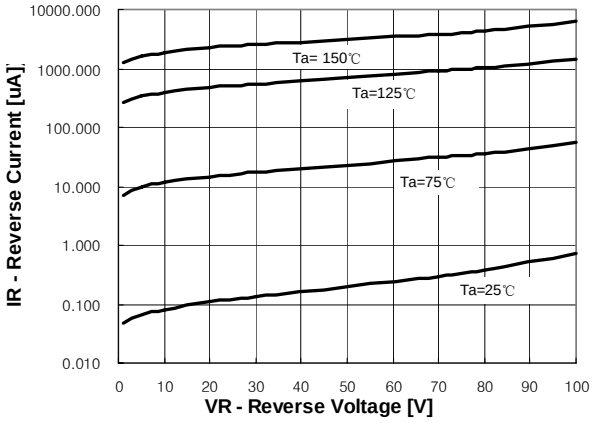


Figure 4. MBRF20150CT Typical Reverse Current (Per Diode)

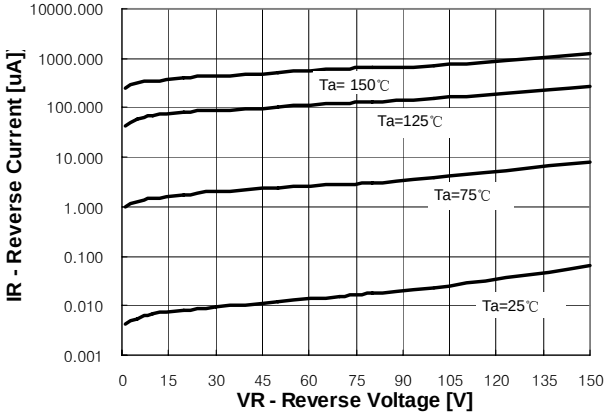


Figure 5. MBRF20200CT Typical Reverse Current (Per Diode)

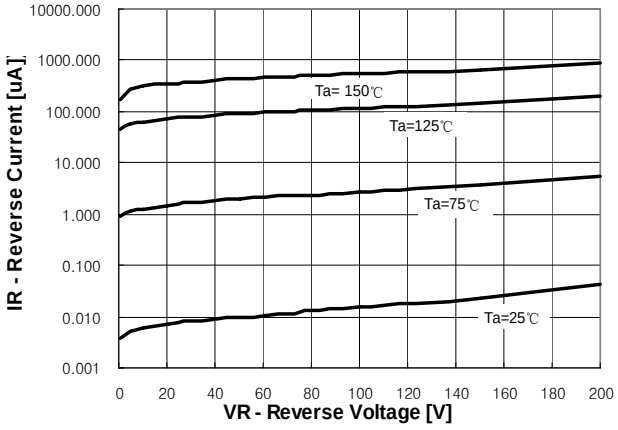


Figure 6. MBRF20100CT Typical Forward Voltage (Per Diode)

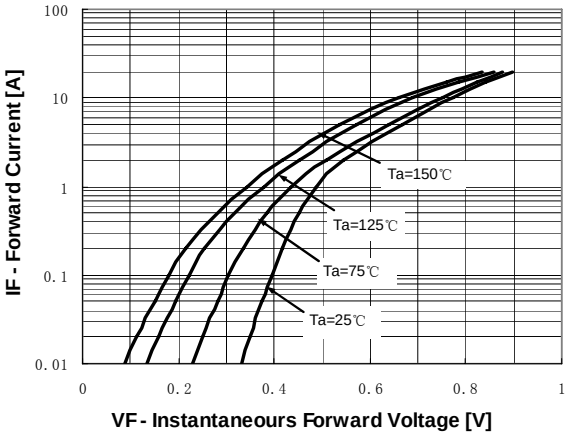


Figure 7. MBRF20150CT Typical Forward Voltage (Per Diode)

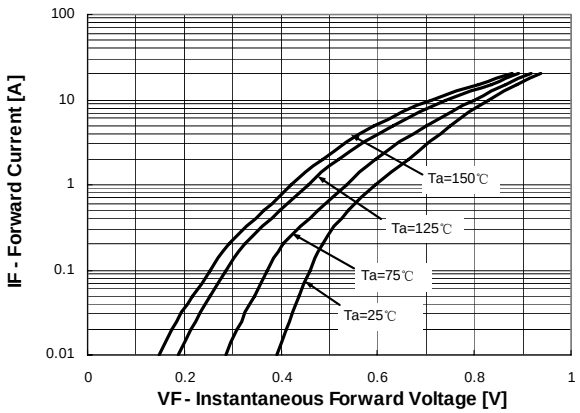
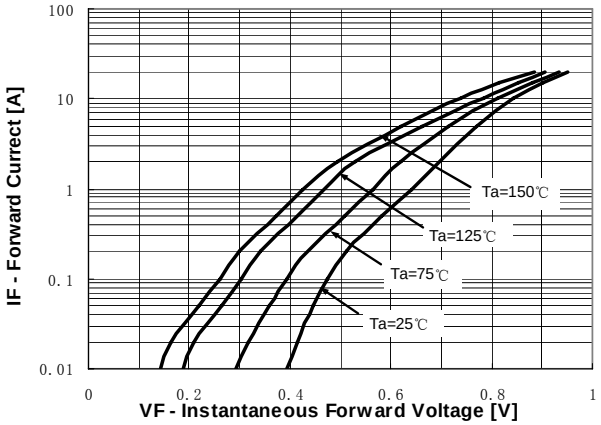
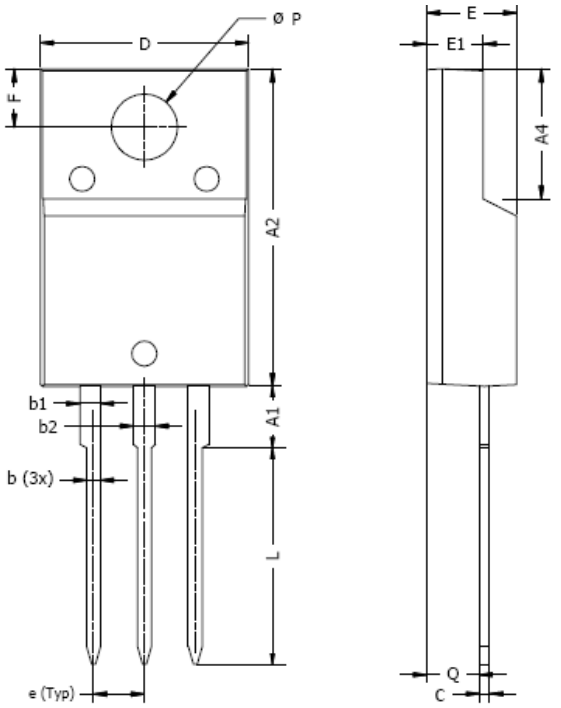


Figure 8. MBRF20200CT Typical Forward Voltage (Per Diode)



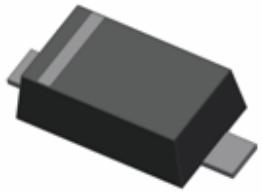
TO220FP SG PACKAGE OUTLINE



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A1	2.7	3.3	0.106	0.130
A2	15.0	15.7	0.591	0.618
A4	6.2	6.6	0.244	0.260
b	0.5	0.9	0.020	0.035
b1	0.9	1.2	0.035	0.047
b2	1.0	1.2	0.039	0.047
c	0.4	0.6	0.016	0.024
D	9.8	10.3	0.386	0.406
e	2.34	2.74	0.092	0.108
E	4.3	4.6	0.169	0.181
E1	2.5	2.9	0.098	0.114
F	2.6	3.0	0.102	0.118
L	10.3	10.7	0.406	0.421
ØP	3.0	3.4	0.118	0.134
Q	2.3	2.7	0.091	0.106

SOD-323 SURFACE MOUNT
Flat Lead Plastic Package
Schottky Barrier Diode

Green Product



SOD-323 Flat Lead

ELECTRICAL SYMBOL

Absolute Maximum Ratings T_A = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
P_D	Power Dissipation	250	mW
T_{STG}	Storage Temperature Range	-55 to +125	°C
T_J	Junction Temperature	+125	°C
V_{RM}	Repetitive Peak Reverse Voltage	40	V
I_O	Average Rectified Output Current	1	A
I_{FSM}	Peak Forward Surge Current (t=8.3ms Single Half Sine-wave)	9	A
I_{FRM}	Repetitive Peak Forward Current	1.5	A

These ratings are limiting values above which the serviceability of the diode may be impaired.

Specification Features:

- RoHS Compliant
- Green EMC
- Matte Tin(Sn) Lead Finish
- Band Indicates Cathode
- Weight: approx. 0.004g

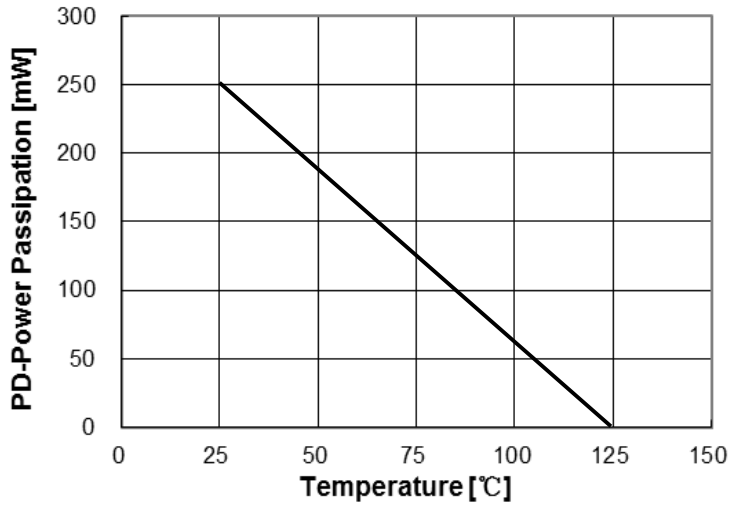
DEVICE MARKING CODES:

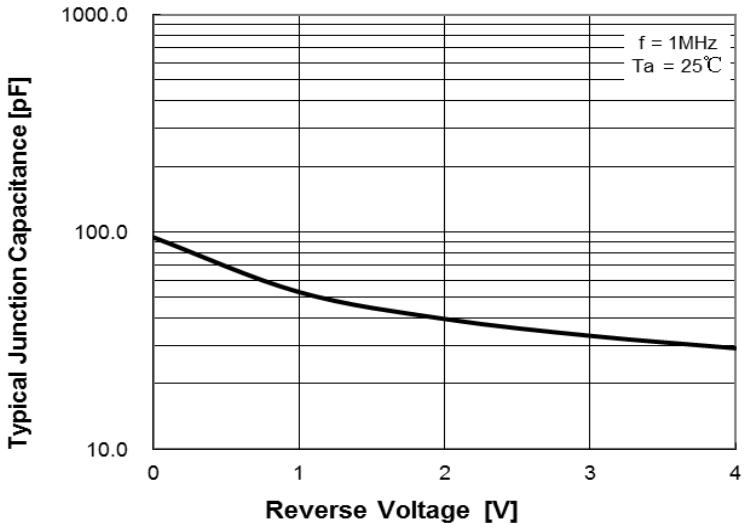
Device Type	Device Marking
B5819WS	SL

Electrical Characteristics T_A = 25°C unless otherwise noted

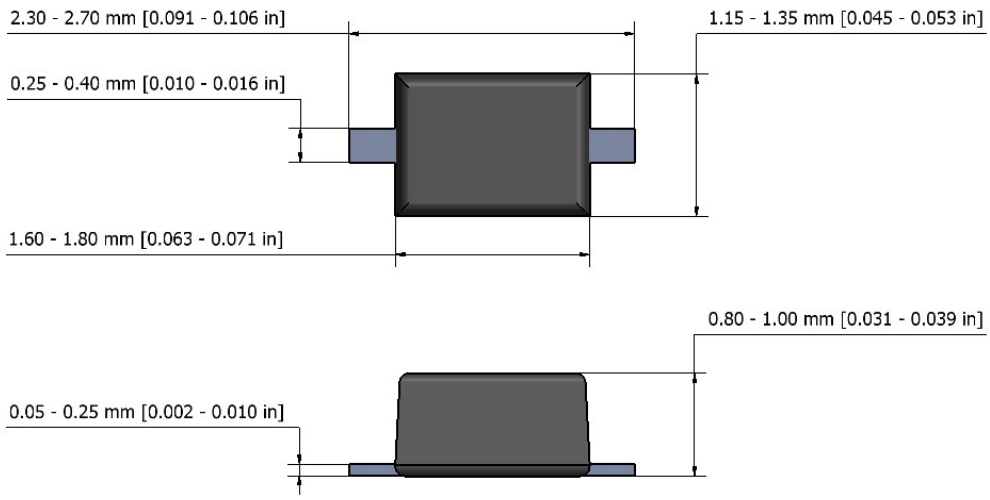
Symbol	Parameter	Test Condition	Limits			Unit
			Min	Typ	Max	
V_{BR}	Reverse Breakdown Voltage	I_R=1mA	40	--	--	Volts
I_R	Reverse Leakage Current	V_R=40V	--	--	1	mA
V_F	Forward Voltage	I_F=1A	--	--	0.60	Volts
Cd	Diode Capacitance	V_R=4V, f= 1MHz	--	30	--	pF

RATING AND CHARACTERISTIC CURVES





SOD-323 Package Outline



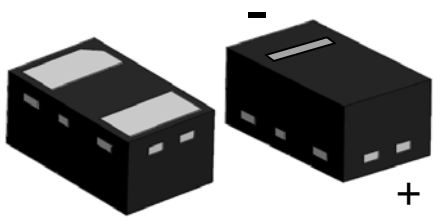
NOTES:
1. The above package outline is similar to JEITA SC-90.
2. Dimensions are exclusive of Burrs, Mold Flash & Tie Bar extrusions.

TAK CHEONG®

SEMICONDUCTOR

SOD-882 Plastic Package
Schottky Barrier Diode

Green Product



SOD882 Package

Absolute Maximum Ratings T_A = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
P_D	Power Dissipation	150	mW
T_{STG}	Storage Temperature Range	-55 to +125	°C
T_J	Operating Junction Temperature	+125	°C
V_R	DC Reverse Voltage	30	V
$I_{F(AV)}$	Average Forward Current	200	mA
I_{FSM}	Peak Forward Surge Current (At 8.3ms single half sine-wave)	0.5	A

These ratings are limiting values above which the serviceability of the diode may be impaired.

Specification Features:

- Low Forward Voltage Drop
- Small Surface Mounting Type
- RoHS Compliant
- Green EMC
- Matte Tin(Sn) Lead Finish
- Band Indicates Cathode
- Weight: approx. 0.001g

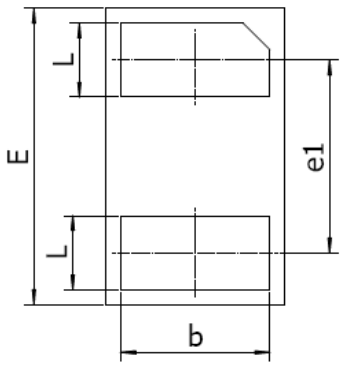
DEVICE MARKING CODES:

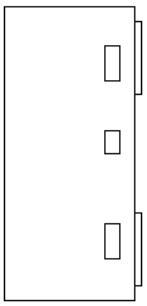
Device Type	Marking	Shipping
RB521S8-30	F	10,000/Tape & Reel

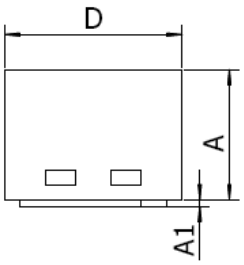
Electrical Characteristics T_A = 25°C unless otherwise noted

Symbol	Parameter	Test Condition	Limits		Unit
			Min	Max	
I_R	Reverse Leakage Current	V_R=10V		30	μA
V_F	Forward Voltage	I_F=10mA		0.35	Volts
		I_F=200mA		0.50	Volts

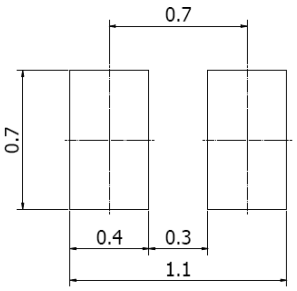
SOD882 Package Outline







Typical Soldering Pattern(mm):

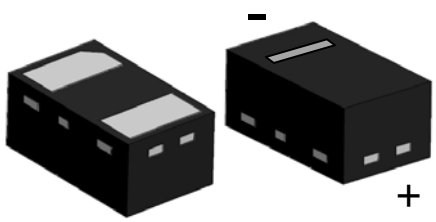


DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.46	0.50	0.018	0.020
A1	---	0.03	---	0.001
b	0.45	0.55	0.018	0.022
D	0.55	0.65	0.022	0.026
E	0.95	1.05	0.037	0.041
e1	Typ. 0.65		Typ. 0.026	
L	0.20	0.30	0.008	0.012

SOD-882 SURFACE MOUNT

Very Small Outline Flat Lead Plastic Package Schottky Barrier Diode

Green Product



SOD882 Package

Absolute Maximum Ratings

T_A = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
P_D	Power Dissipation	150	mW
T_{STG}	Storage Temperature Range	-55 to +125	°C
T_J	Operating Junction Temperature	+125	°C
V_{RM}	Peak Reverse Voltage	40	V
V_R	DC Reverse Voltage	30	V
$I_{F(AV)}$	Average Forward Current	30	mA
I_{FSM}	Peak Forward Surge Current (At 8.3ms single half sine-wave)	200	mA

These ratings are limiting values above which the serviceability of the diode may be impaired.

Specification Features:

- Low Forward Voltage Drop
- Small Surface Mounting Type (DFN1006)
- RoHS Compliant
- Green EMC
- Matte Tin(Sn) Lead Finish
- Band Indicates Cathode
- Weight: approx. 0.001g

DEVICE MARKING CODES:

Device Type	Marking	Shipping
RB751BS-40	5	10,000/Tape & Reel

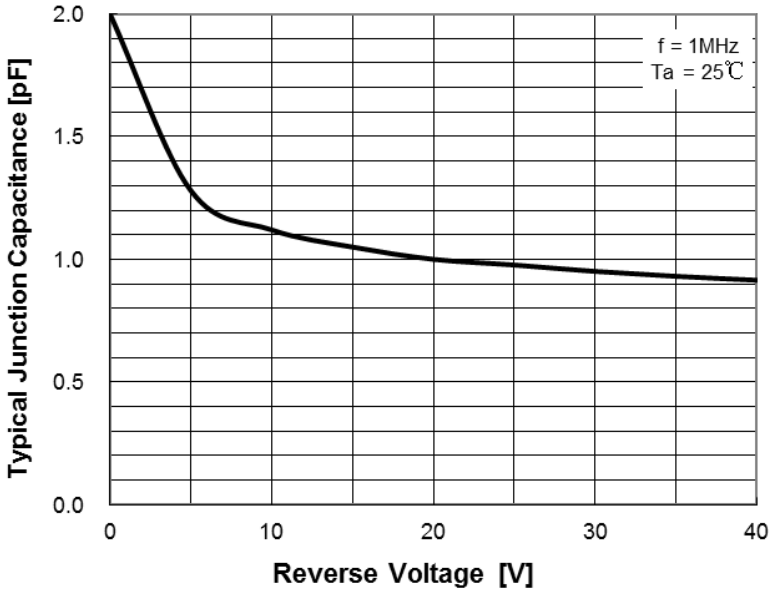
Electrical Characteristics

T_A = 25°C unless otherwise noted

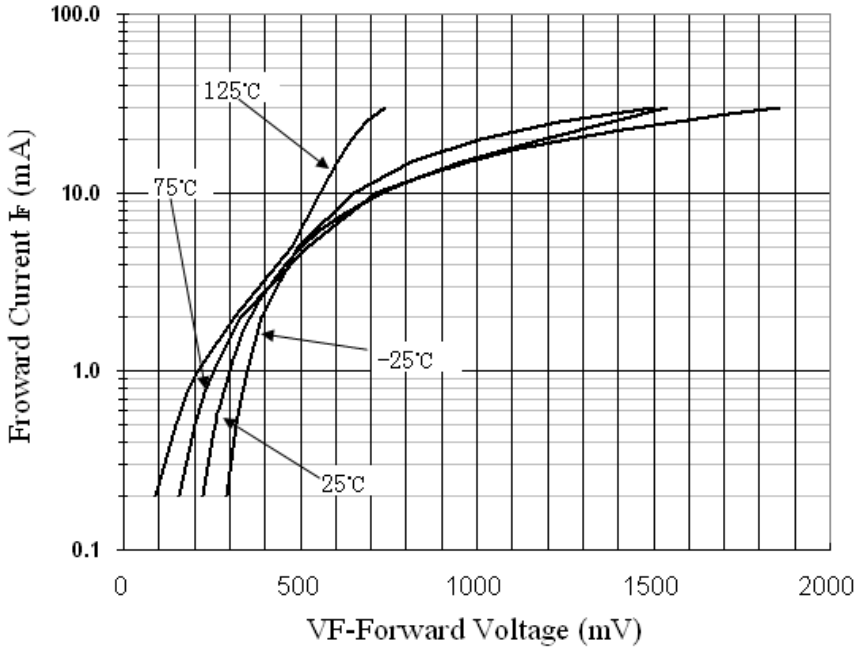
Symbol	Parameter	Test Condition	Limits		Unit
			Min	Max	
V_F	Forward Voltage	I_F=1mA		0.37	Volts
I_R	Reverse Leakage Current	V_R=30V		0.5	μA
C	Capacitance	V_R=0V, f=1M_{HZ}	Typ. 2		pF

TYPICAL CHARACTERISTIC CURVES

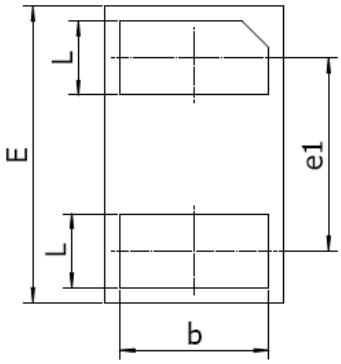
Total Capacitance

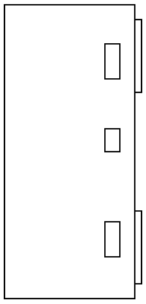


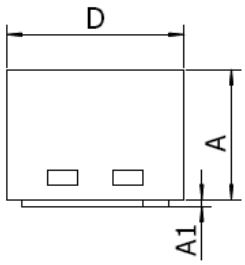
Forward Voltage vs Ambient Temperature



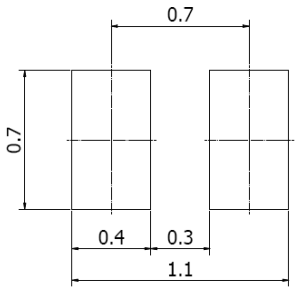
SOD882 Package Outline







Typical Soldering Pattern(mm):



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.46	0.50	0.018	0.020
A1	---	0.03	---	0.001
b	0.45	0.55	0.018	0.022
D	0.55	0.65	0.022	0.026
E	0.95	1.05	0.037	0.041
e1	Typ. 0.65		Typ. 0.026	
L	0.20	0.30	0.008	0.012