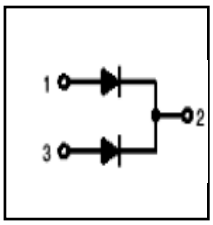
Low VF Schottky Barrier series Rectifiers Voltage 45 Volts

1 Description

These Schottky diodes are common Cathode double Schottky diode with A.Have a balanced positive pressure drop characteristic and High temperature leakage characteristics. Which accords with the RoHS standard.



V_{RRM} = 45V

$I_{(AV)}$= 20A

TO-220F

2 Features

- Low Power Loss, High Efficiency
- High Current Capability, Low Forward Voltage Drop
- High Surge Capability
- Wheeling and Polarity Protection Applications
- Guardring for Overvoltage Protection
- 100% Single Pulse Avalanche Energy Test
- 100% ΔV_{DS} Test
- High Temperature Soldering Guaranteed: 260℃/10 Seconds,0.25”(6.35mm)from Case

3 Applications

- Switching Power Supply Rectified Output
- Continued Stream Diode
- Battery Reverse Protection

4 Electrical Characteristics

4.1 Absolute Maximum Rating (Tamb=25℃,unless otherwise noted)

Parameter		Symbol	Value	Units
Recurrent Peak Reverse Voltage		V_{RRM}	45	V
RMS Voltage		V_{RMS}	31	V
Average Forward Rectified Current	Dan Guan	$I_{(AV)}$	10	A
	Double		20	A
DC Blocking Voltage		V_{DC}	45	V
Peak Forward Surge Current (8.3 ms Single Half)		I_{FSM}	150	A
Peak Repetitive Reverse Surge Current (Note 3)		I_{RRM}	2	A
Instantaneous Reverse Current	T_C=25℃ (Note 5) at Rated DC Blocking Voltage	I_R	100	μA
	T_C=125℃		15	mA
Voltage Rate of Change (Rated VR)		dv/dt	10	V/μs
Maximum Instantaneous Forward Voltage at	I_F=10A T_C=25℃	V_F	0.65	V
	I_F=10A T_C=125℃		0.55	
	I_F=20A T_C=25℃		0.90	

Operating Junction Temperature Range	T_j	150	℃
Typical Junction Capacitance	C_J	310	pF
Storage Temperature Range	T_{stg}	-40～150	℃

4.2 Thermal Characteristics

Parameter		Symbol	Value	Unit
Thermal Resistance Junction to Case-sink	TO-220C	R_{thJC}	2.4	℃/W
	TO-220F		4.5	
	TO-251/252		4.2	

4.3 Electrical Characteristics(Tamb=25℃,unless otherwise noted)

Parameter	Symbol	Test Condition	Value			Units
			Min	Typ	Max	
Breakdown Voltage	V_{BR}	I_R=1mA	100	--	--	V
Forward Voltage Drop	V_F*	I_F=10A, T_J=25℃	--	--	0.85	V
		I_F=10A, T_J=125℃	--	--	0.70	
		I_F=20A, T_J=25℃	--	--	0.95	
		I_F=20A, T_J=125℃	--	--	0.80	
Reverse Leakage Current	I_R*	V_R=100V, T_J=125℃	--	--	15	mA
		V_R=100V, T_J=25℃	--	--	0.05	
Pulse test, pulse width tp = 300μs, duty cycle δ ≤ 2%						

Notes：

1: Repetitive rating, pulse width limited by maximum junction temperature.

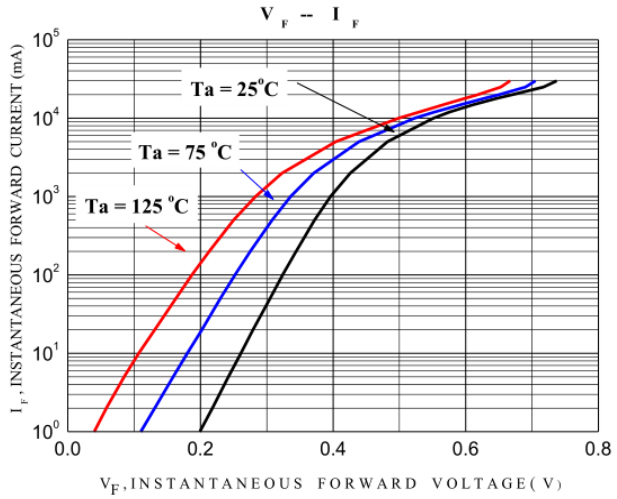
2: Surface mounted on FR4 Board, t≤10sec.

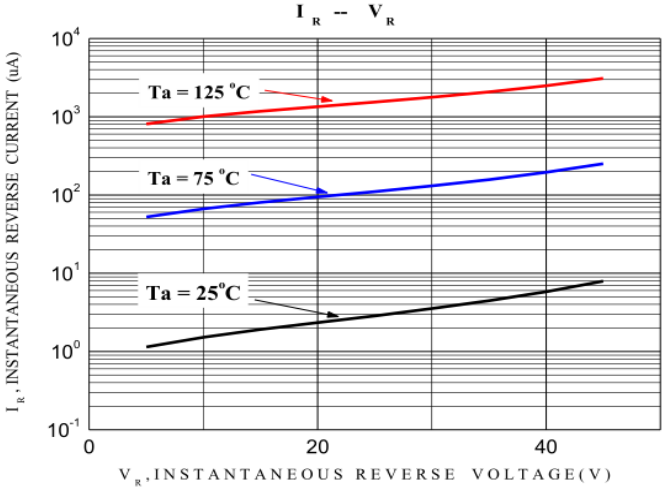
3: 2.0 us Pulse Width, f=1.0 KHz

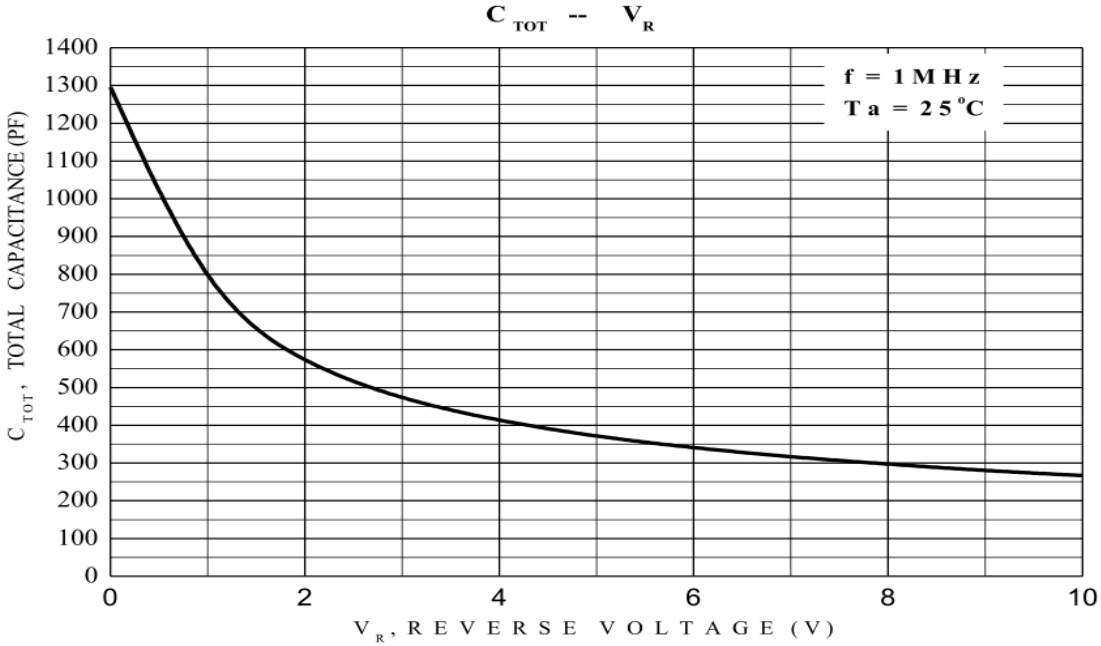
4: Guaranteed by design, not subject to production.

5. Pulse Test: 300us Pulse Width, 1% Duty Cycle

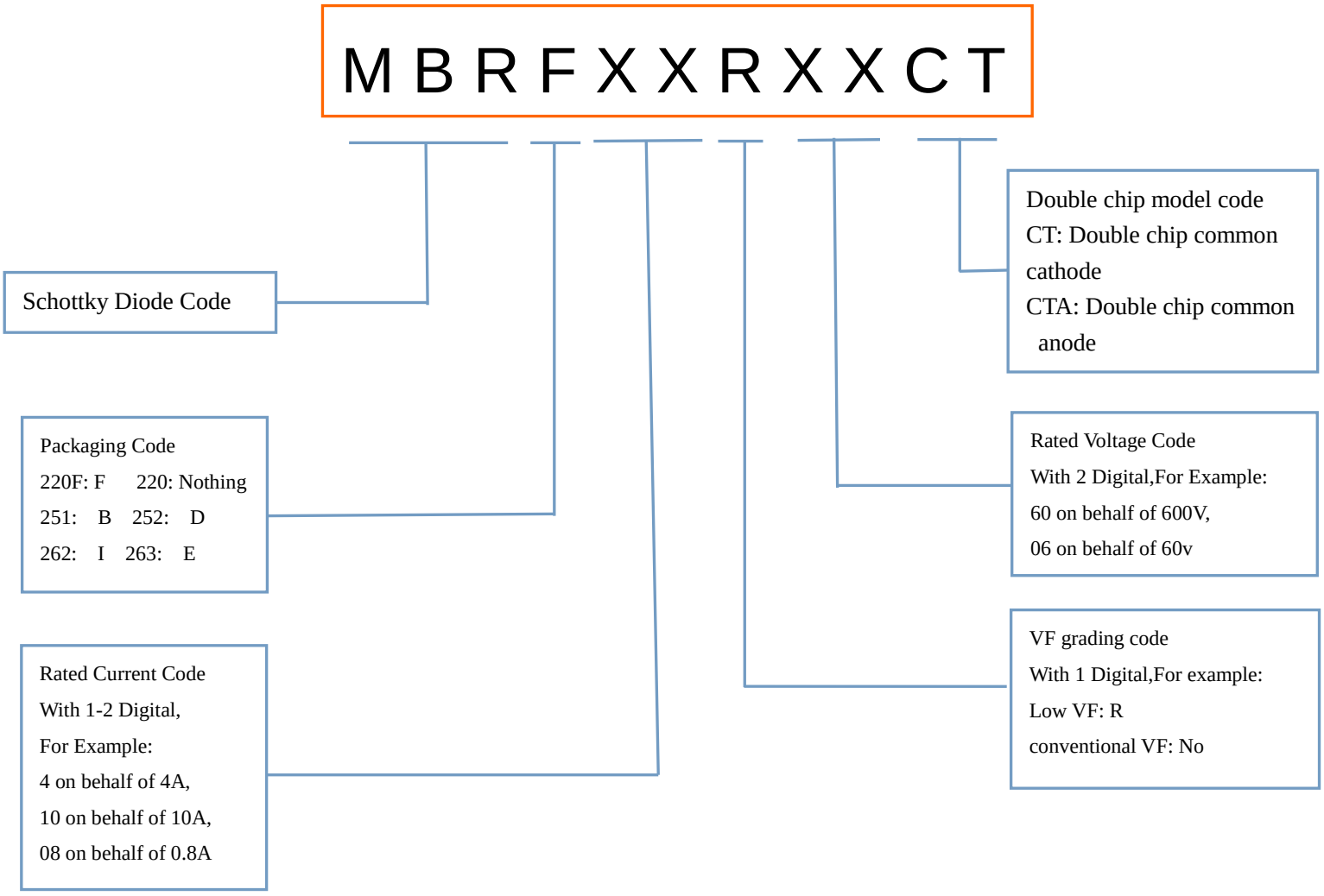
5 Typical characteristics diagrams







6 Product Names Rules

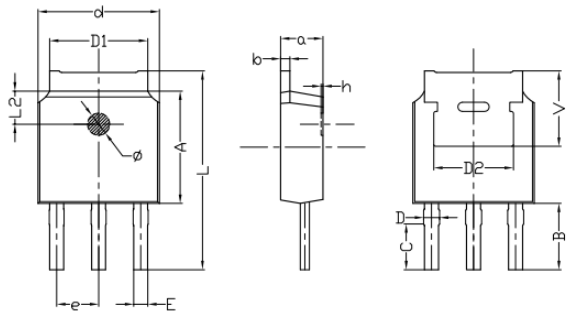


7 Product Specifications and Packaging Models

Product Model	Package Type	Mark Name	RoHS	Package	Quantity
MBR2045CT	TO-220C	MBR2045CT	Pb-free	Tube	1000/box
MBR2045CT	TO-220F	MBR2045CT	Pb-free	Tube	1000/box
MBR2045CT	TO-251	MBR2045CT	Pb-free	Tube	1000/box
MBR2045CT	TO-252	MBR2045CT	Pb-free	Tape & Reel	3000/box

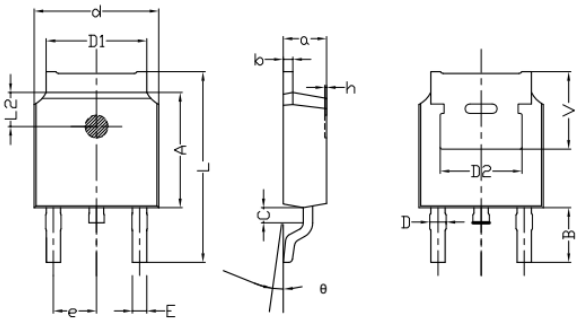
8 Dimensions

TO-251B PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	min.	max.	min.	max.
a	2.20	2.40	0.087	0.0946
b	0.46	0.58	0.018	0.023
C	2.45	2.65	0.097	0.104
D	0.80	0.90	0.032	0.035
d	6.30	6.70	0.248	0.264
D1	5.00	5.50	0.197	0.217
D2	TYP 4.83		TYP 0.190	
A	5.80	6.20	0.228	0.244
e	2.19	2.39	0.086	0.094
L	10.40	11.00	0.4098	0.4334
B	3.50	3.70	0.1379	0.1458
L2	1.5	1.8	0.059	0.071
ϕ	1.10	1.30	0.0433	0.0512
h	0.00	0.30	0.000	0.012
V	5.25	5.85	0.207	0.230
E	0.60	0.80	0.0236	0.0315

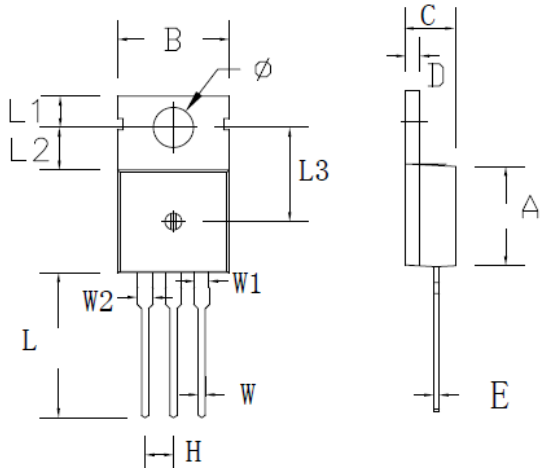
TO-252B PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	min.	max.	min.	max.
a	2.20	2.40	0.087	0.095
b	0.46	0.58	0.018	0.023
c	0.70	0.90	0.028	0.035
D	0.80	1.00	0.032	0.039
d	6.30	6.70	0.248	0.264
D1	5.00	5.50	0.197	0.217
D2	TYP 4.83		TYP 0.190	
A	5.80	6.20	0.228	0.244
e	2.19	2.39	0.086	0.094
L	9.40	10.40	0.370	0.409
B	2.6	3.2	0.102	0.126
L2	1.5	1.8	0.059	0.071
θ	0	8	0	8
h	0	0.3	0	0.012
V	5.25	5.85	0.207	0.230

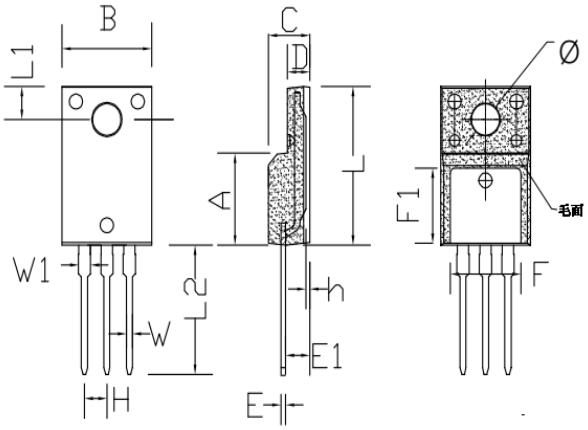
8 Dimensions(continues)

TO-220C PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	min.	max.	min.	max.
A	8.80	9.30	0.346	0.366
B	9.70	10.30	0.382	0.406
C	4.25	4.75	0.167	0.187
D	1.20	1.45	0.047	0.057
E	0.40	0.60	0.016	0.024
H	2.54 TYP		0.100 TYP	
W	0.60	0.95	0.024	0.037
W1	1.05	1.45	0.041	0.057
W2	1.20	1.60	0.047	0.063
L	12.60	13.40	0.496	0.528
L1	2.45	2.95	0.096	0.116
L2	3.45	3.95	0.136	0.156
L3	8.15	8.65	0.321	0.341
Φ	3.50	3.90	0.138	0.154

TO-220F PACKAGE OUTLINE DIMENSIONS



Symbol	DimensionsIn Millimeters		DimensionsIn Inches	
	min.	max.	min.	max.
A	8.80	9.30	0.346	0.366
B	10.00	10.50	0.394	0.413
C	4.30	4.90	0.169	0.193
D	2.30	2.70	0.091	0.106
L	15.55	16.15	0.612	0.636
h	0.40	0.60	0.016	0.024
L1	3.15	3.55	0.124	0.140
L2	12.65	13.35	0.498	0.526
W	0.70	0.90	0.028	0.035
W1	1.15	1.55	0.045	0.061
H	2.54 TYP		0.100 TYP	
E	0.48	0.53	0.019	0.021
ϕ	2.90	3.40	0.114	0.134
E1	2.40	2.90	0.094	0.114
F	7.75	8.25	0.305	0.325
F1	7.35	7.85	0.289	0.309

9 Attentions

- ROUM Semiconductor Technology CO.,LTD. reserves the right to change the specification without prior notice! The customer should obtain the latest version of the information before making the order and verify that the information is complete and up to date.
- It is the responsibility of the purchaser for any failure or failure of any semiconductor product under certain conditions. It is the responsibility of the purchaser to comply with safety standards and to take safety measures in the system design and machine manufacturing of Roma products in order to avoid potential risk of failure. Injury or property damage.
- Product promotion is endless, our company will be dedicated to provide customers with better products.

10 Appendix

Revision history:

Date	REV.	Description	Page
2017.04.05	1.0	Original	