

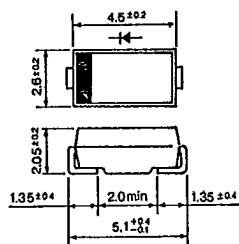
Schottky Barrier Diodes

V_{RM}: 30~90V I_o: 0.7~30A

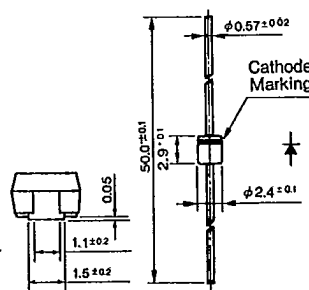
SFPB/AK/EK/RK/FMB/CTB/RBA/RBV

Rating / Characteristics	Absolute Maximum Ratings							Electrical Characteristics (Ta = 25°C)							Others									
	V _{RSM} (V)	V _{RM}	I _o (A)	I _{FSM} (A)	I _{2t} (A²S)	T _j (°C)	T _{stg} (°C)	V _F (V)	I _R (mA)	I _{R(H)} (mA)	t _{rr} (μs)	R _{th(j-ℓ)} (°C/W)	Outline Drawing	Weight(g)	Taping	Note								
Type No.	Per chip		with Fin	50Hz Half Sine Wave Single Pulse				Max. per chip	I _F (A)	V _R = V _{RM} max (per chip)	V _R = V _{RM} , T _j = 125°C max (per chip)	I _F /I _{RP} (mA)												
SFPB-54	45	40	1.0	60				0.55	1.0	1.0	50	0.05		⑦③	0.072		Surface Mount							
SFPB-64	45	40	1.5					0.62	2.0		7.5													
SFPB-56	60	60	0.7					10	0.7		5.0													
SFPB-59	90	90							0.81		50													
AK 03	35	30	1.0	25				0.6	1.0	(T _j = 100°C)	0.1		⑦④	0.13										
AK 04	45	40						0.62	7.5															
AK 06	60	60	0.7	10				0.7	5.0															
AK 09	90	90						0.81	50															
EK 03	35	30	1.0	40				0.55	1.5	5.0	50	0.2		⑦⑤	0.3	Available								
EK 04	45	40						0.62	7.5															
EK 06	60	60	0.7	10				0.7	5.0															
EK 09	90	90						0.81	50															
EK 13	35	30	1.5	40				0.55	2.0	5.0	50	0.2		⑦⑥										
EK 14	45	40						0.62	15															
EK 16	60	60						1.5	25	1.5	10													
EK 19	90	90								0.81	2.0													
RK 13	35	30	1.7	60				0.55	2.0	5.0	50	0.2		⑦⑦	0.45									
RK 14	45	40						0.62	15															
RK 16	60	60	1.5	25				1.5	10															
RK 19	90	90						0.81	2.0															
RK 33	35	30	2.5	50				0.55	2.5	5.0	50	0.1		⑦⑧	0.6									
RK 34	45	40						0.62	20															
RK 36	60	60	2.0	40				2.0	15															
RK 39	90	90						0.81	3.0															
RK 43	35	30	3.0	80				0.55	3.0	5.0	50	0.1		⑦⑨	1.2									
RK 44	45	40						0.62	35															
RK 46	60	60	3.5	70				3.5	10															
RK 49	90	90						0.81	5.0															
FMB-G14L	45	40	5.0	60	18	-40 ~ +125		0.55	5.0	5.0	100	0.1		⑧①	2.1									
FMB-G24H	45	40	10	150	112.5				10	10	65													
FMB-23	35	30	4.0	50						2.0	1.0							20						
FMB-24	45	40																	40	8				
FMB-26	60	60				50	12.5																	
FMB-29	90	90				60	18																	
FMB-24M	45	40	6.0	60	18			0.55	3.0	5.0	35	0.1		⑧②	5.5									
FMB-24H	40	40	15	100	50				7.5	7.5	50													
FMB-23L	35	30	10	60						5.0	5.0							35						
FMB-24L	48	40																	50	12.5				
FMB-26L	60	60				60	18																	
FMB-29L	90	90				8.0	60	18																
FMB-33S	35	30	12	75				0.58	6.0	5.0	35	0.1		⑧③	2.6									
FMB-34S	48	40																						
FMB-33	35	30	15	150				28	50	0.55	7.5							10	65	2.0	⑧④	6.1		
FMB-34	48	40																						
FMB-36	60	60			100																			
FMB-39	90	90																						
FMB-33M	35	30	30	300	112.5			0.55	15	20	100	0.1		⑧⑤	4.25									
FMB-34M	48	40																						
FMB-36M	60	60						150																
FMB-39M	90	90						20																
CTB-24	45	40	4.0	60				0.55	2.0	5	50	0.2		⑧⑥	2.6									
CTB-24L	48	40	10	60				5.0	35															
CTB-33S	35	30	12	75				0.58	6.0		80													
CTB-34S	48	40										35												
CTB-33	35	30	15	150				0.55	10	10	65	0.1		⑧⑦	6.1									
CTB-34	48	40																						
CTB-33M	35	30	30	300				0.62	10	15	20	100												
CTB-34M	48	40																						
RBA-406B	60	60	4.0	40				0.62	2.0	2.0	20	100/100	5.0	⑧⑧	4.25									

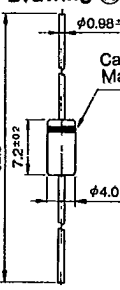
Outline Drawing ⑦③



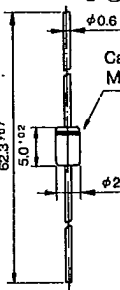
Outline Drawing ⑦④



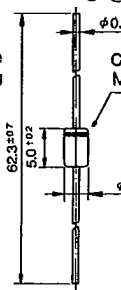
Outline Drawing ⑦⑤



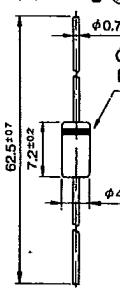
Outline Drawing ⑦⑥



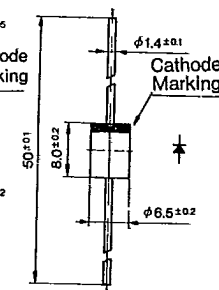
Outline Drawing ⑦⑦



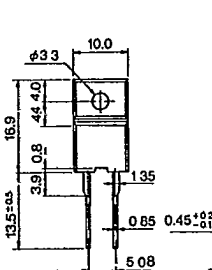
Outline Drawing ⑦⑧



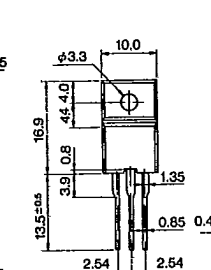
Outline Drawing ⑦⑨



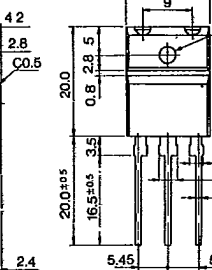
Outline Drawing ⑧①



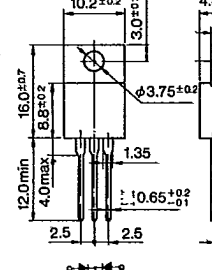
Outline Drawing ⑧②



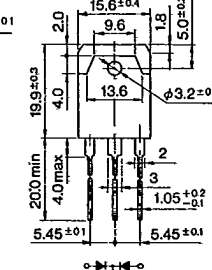
Outline Drawing ⑧③



Outline Drawing ⑧④

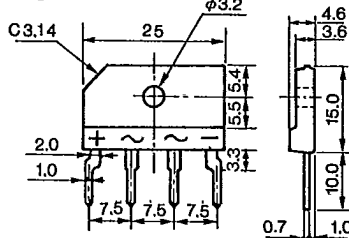


Outline Drawing ⑧⑤



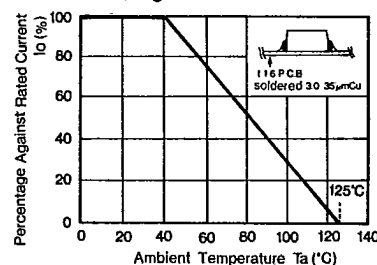
⑦③~⑧⑤ Plastic Molded, Flammability: UL94V-0 or Equivalent

Outline Drawing ⑧⑥



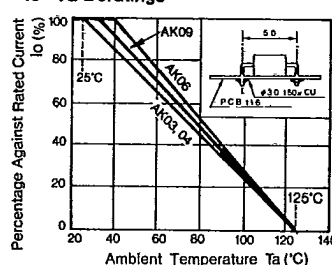
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Io-Ta Deratings

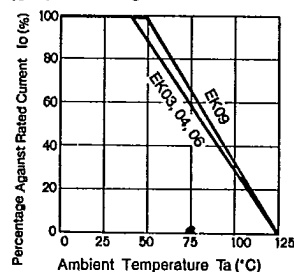


AK 03.04.06.09

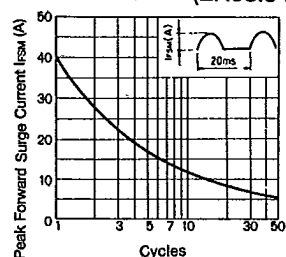
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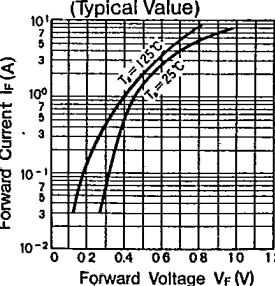
Io-Ta Deratings



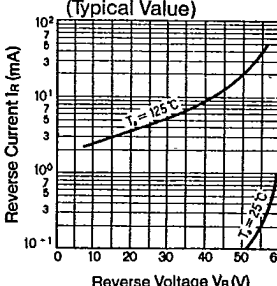
IFSM Characteristics (EK03.04)



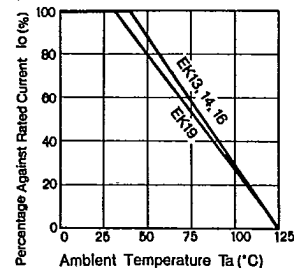
IF-VF Characteristics (Typical Value)



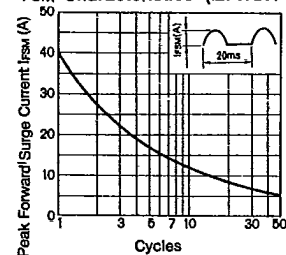
IR - VR Characteristics (Typical Value)



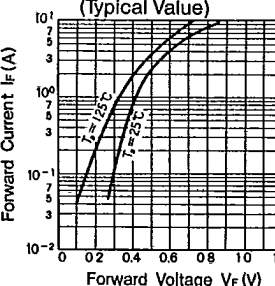
Io-Ta Deratings



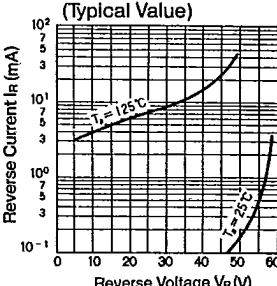
IFSM Characteristics (EK13.14)



IF-VF Characteristics (Typical Value)

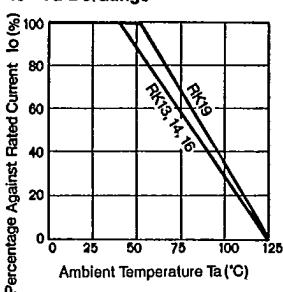


IR - VR Characteristics (Typical Value)

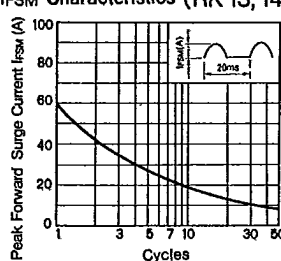
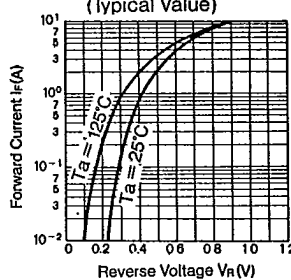
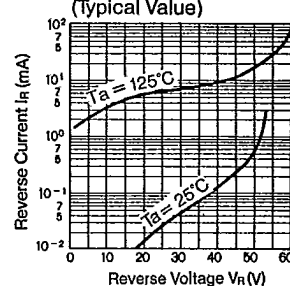
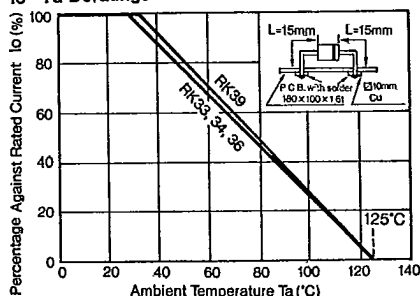


Schottky Barrier Diodes

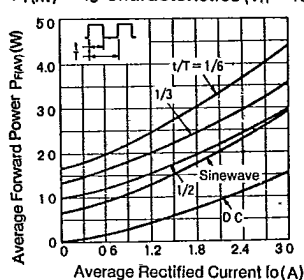
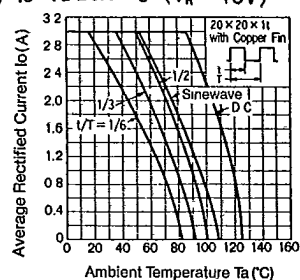
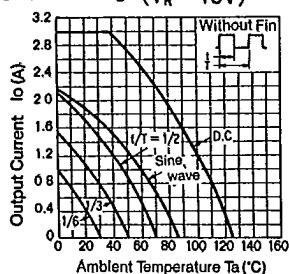
T-23-01

RK 13
RK 14
RK 16
RK 19I_o-T_a Deratings

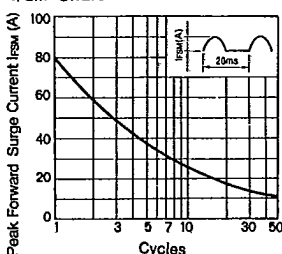
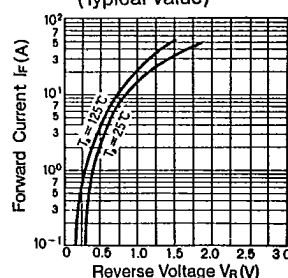
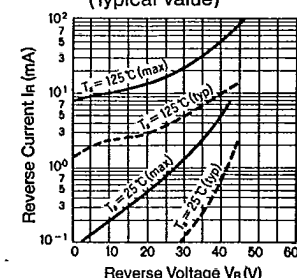
IFSM Characteristics (RK 13, 14)

I_F-V_F Characteristics (Typical Value)I_R - V_R Characteristics (Typical Value)RK 33
RK 34
RK 36
RK 39I_o-T_a Deratings

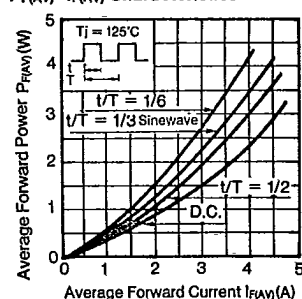
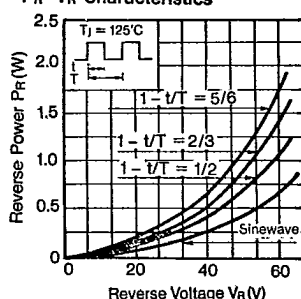
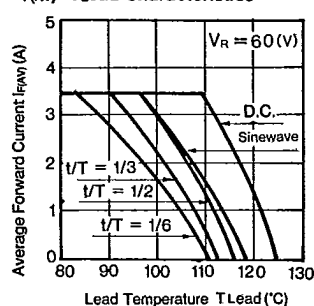
RK 43 RK 44

P_{F(AV)} - I_o Characteristics (V_R = 40V)I_o-T_a Deratings (V_R = 40V)I_o-T_a Deratings (V_R = 40V)

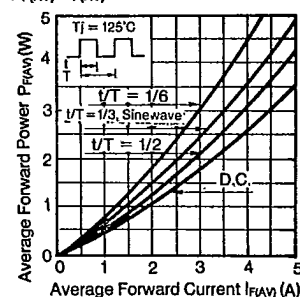
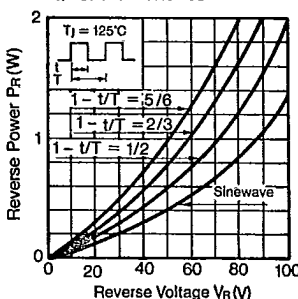
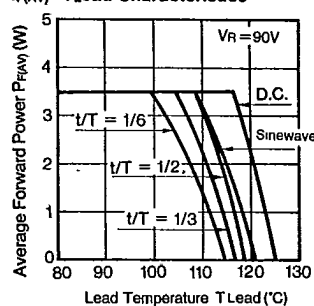
IFSM Characteristics

I_F-V_F Characteristics (Typical Value)I_R - V_R Characteristics (Typical Value)

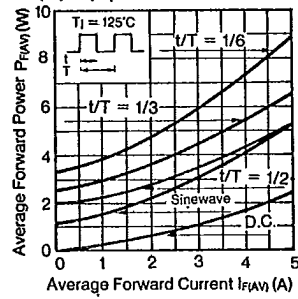
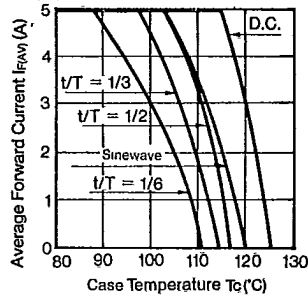
RK 46

P_{F(AV)}-I_{F(AV)} CharacteristicsP_R-V_R CharacteristicsI_{F(AV)}-T_{Lead} Characteristics

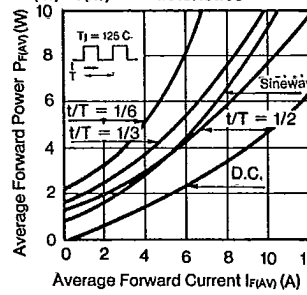
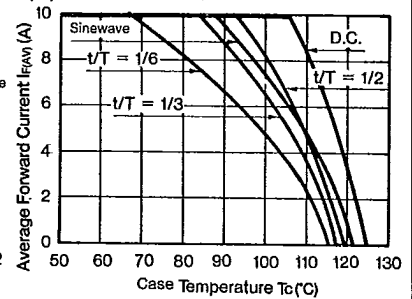
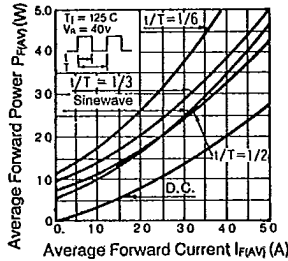
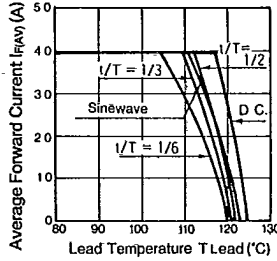
RK 49

P_{F(AV)}-I_{F(AV)} CharacteristicsP_R-V_R CharacteristicsI_{F(AV)}-T_{Lead} Characteristics

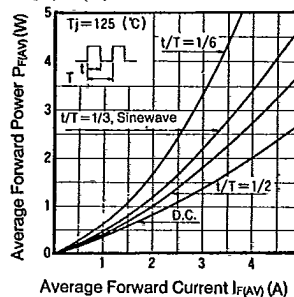
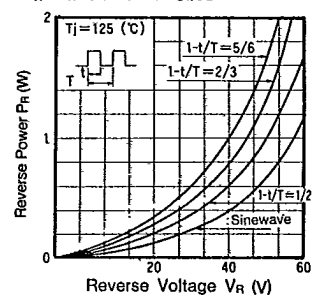
FMB-G14L

P_{F(AV)}-I_{F(AV)} CharacteristicsI_{F(AV)}-T_c Characteristics

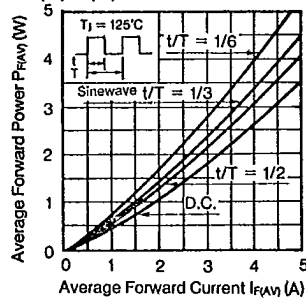
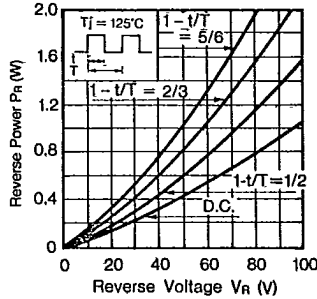
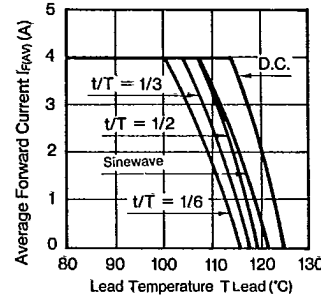
FMB-G24H

P_{F(AV)}-I_{F(AV)} CharacteristicsI_{F(AV)}-T_c CharacteristicsFMB-23
FMB-24P_{F(AV)}-I_{F(AV)} CharacteristicsI_{F(AV)}-T_{Lead} Characteristics

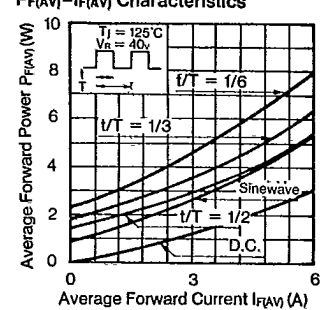
FMB-26

P_{F(AV)}-I_{F(AV)} CharacteristicsP_R-V_R Characteristics

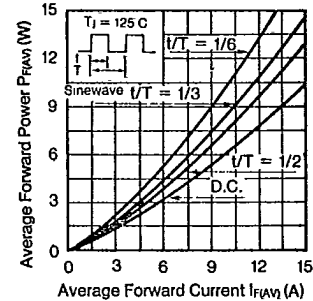
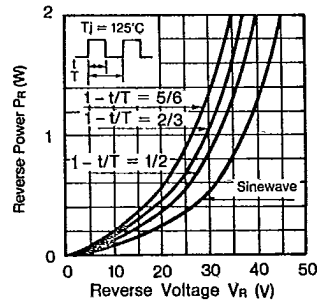
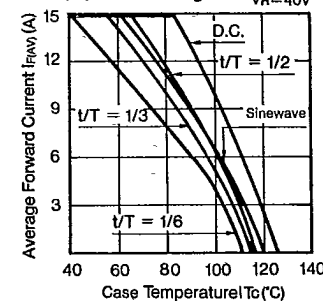
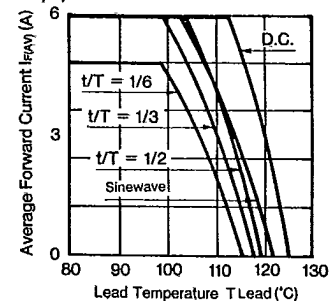
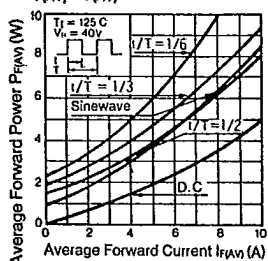
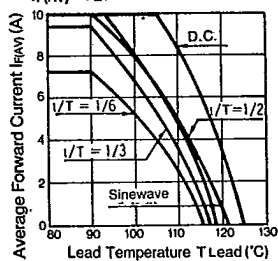
FMB-29

P_{F(AV)}-I_{F(AV)} CharacteristicsP_R-V_R CharacteristicsI_{F(AV)}-T_{Lead} Characteristics

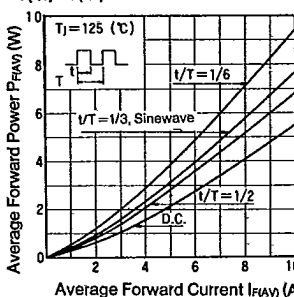
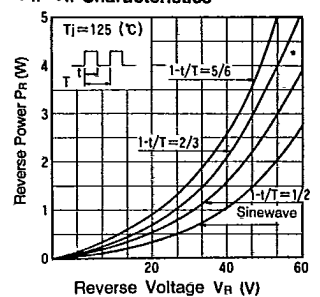
FMB-24M

P_{F(AV)}-I_{F(AV)} Characteristics

FMB-24H

P_{F(AV)}-I_{F(AV)} CharacteristicsP_R-V_R CharacteristicsI_{F(AV)}-T_c DeratingsI_{F(AV)}-T_{Lead} CharacteristicsFMB-23L
FMB-24LP_{F(AV)}-I_{F(AV)} CharacteristicsI_{F(AV)}-T_{Lead} Characteristics

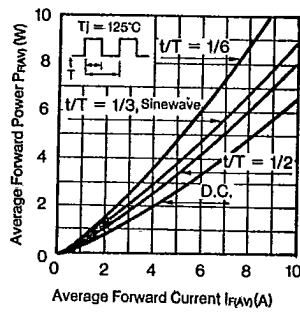
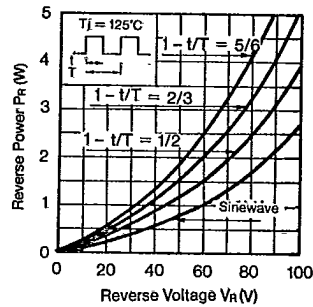
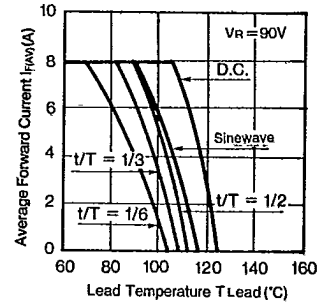
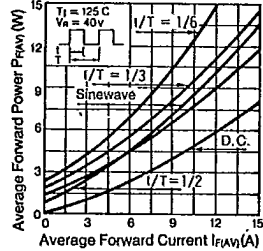
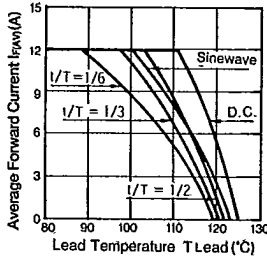
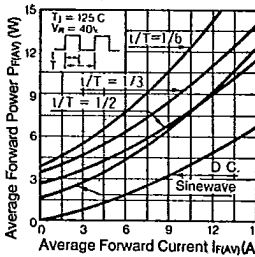
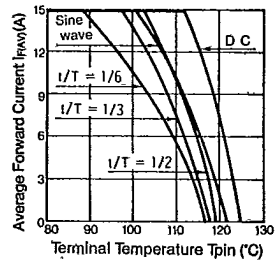
FMB-26L

P_{F(AV)}-I_{F(AV)} CharacteristicsP_R-V_R Characteristics

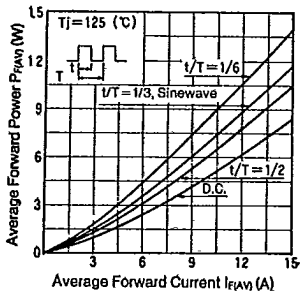
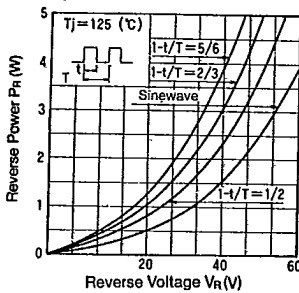
Schottky Barrier Diodes

T-23-01

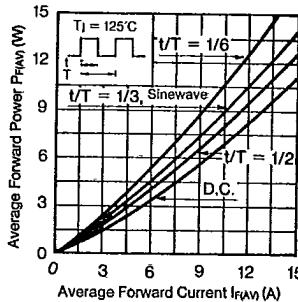
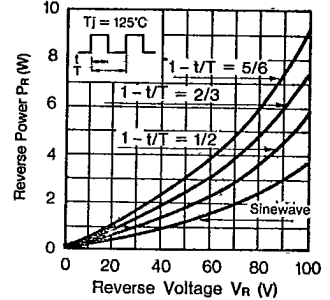
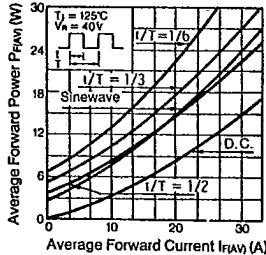
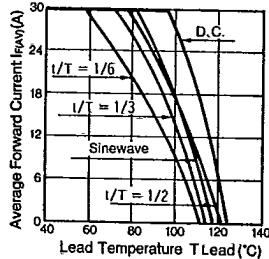
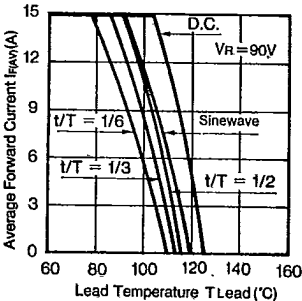
FMB-29L

 $P_F(I_F) - I_F$ Characteristics $P_R - V_R$ Characteristics $I_F(I_F) - T_{Lead}$ CharacteristicsFMB-33S
FMB-34S $P_F(I_F) - I_F$ Characteristics $I_F(I_F) - T_{Lead}$ CharacteristicsFMB-33
FMB-34 $P_F(I_F) - I_F$ Characteristics $I_F(I_F) - T_{Pin}$ Characteristics

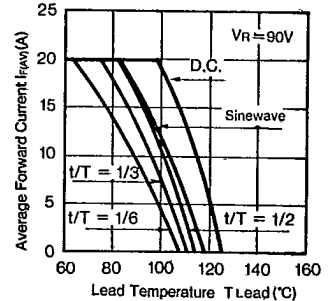
FMB-36

 $P_F(I_F) - I_F$ Characteristics $P_R - V_R$ Characteristics

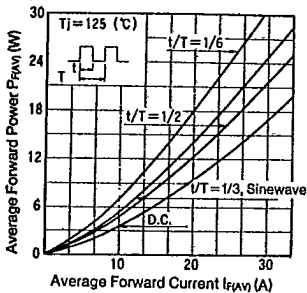
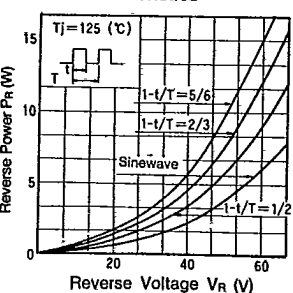
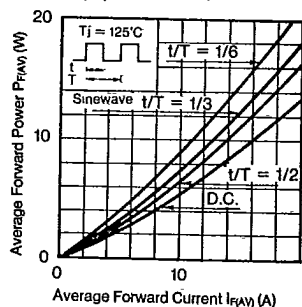
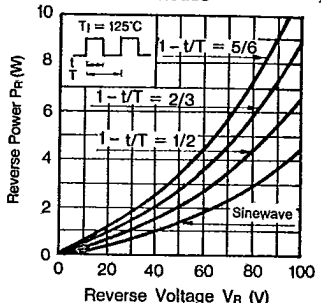
FMB-39

 $P_F(I_F) - I_F$ Characteristics $P_R - V_R$ CharacteristicsFMB-33M
FMB-34M $P_F(I_F) - I_F$ Characteristics $I_F(I_F) - T_{Lead}$ Characteristics $I_F(I_F) - T_{Lead}$ Characteristics

FMB-39M

 $I_F(I_F) - T_{Lead}$ Characteristics

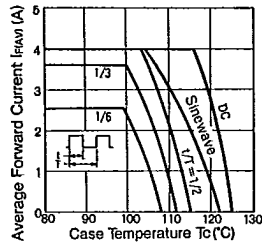
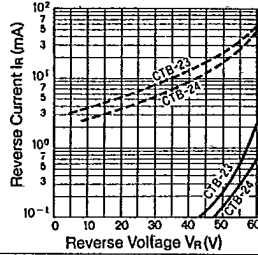
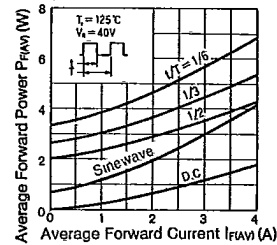
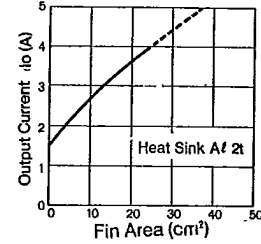
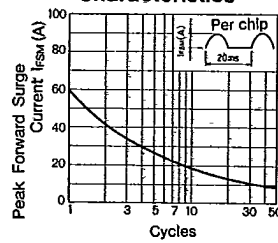
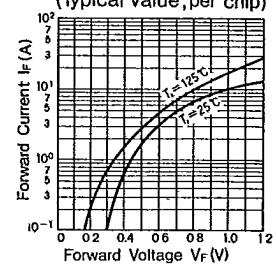
FMB-36M

 $P_F(I_F) - I_F$ Characteristics $P_R - V_R$ Characteristics $P_F(I_F) - I_F$ Characteristics $P_R - V_R$ Characteristics

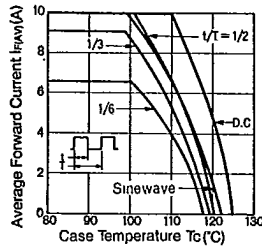
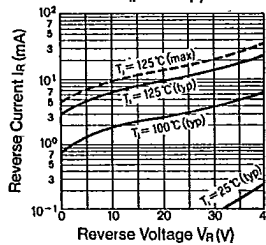
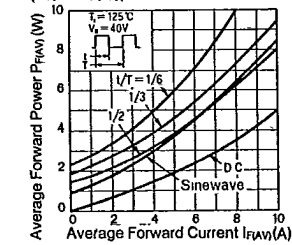
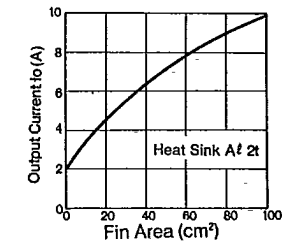
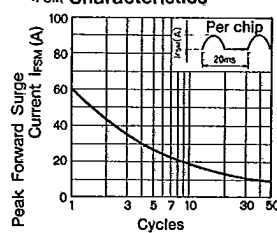
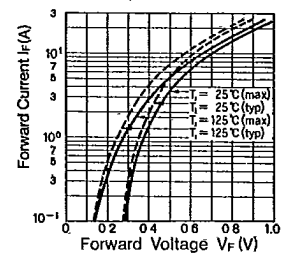
Characteristics

T-23-01

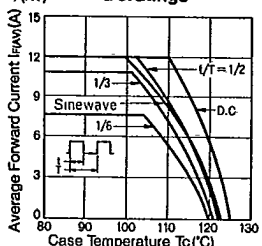
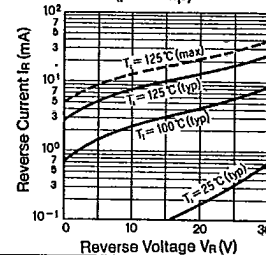
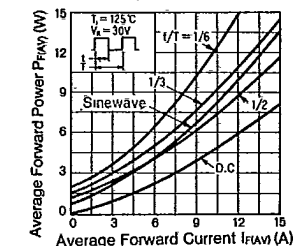
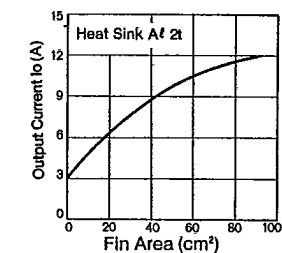
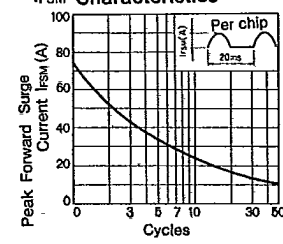
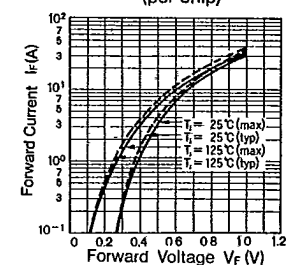
CTB-24

 $I_F(AV) - T_c$ Deratings $I_R - V_R$ Characteristics (Typical Value, per chip) $P_F(AV) - I_F(AV)$ Characteristics $I_o - \text{Fin}$ Characteristics I_{FSM} Characteristics $I_F - V_F$ Characteristics (Typical Value, per chip)

CTB-24L

 $I_F(AV) - T_c$ Deratings $I_R - V_R$ Characteristics (per chip) $P_F(AV) - I_F(AV)$ Characteristics $I_o - \text{Fin}$ Characteristics I_{FSM} Characteristics $I_F - V_F$ Characteristics (per chip)

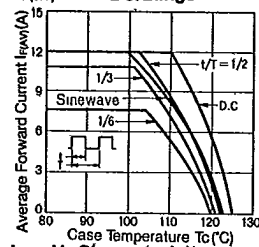
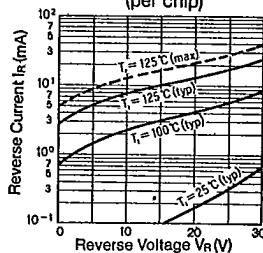
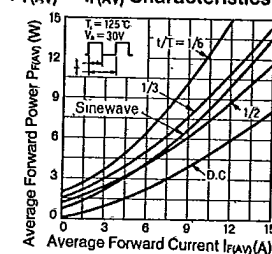
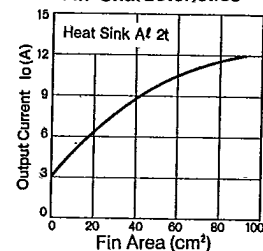
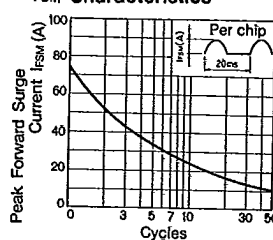
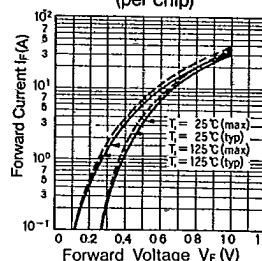
CTB-33S

 $I_F(AV) - T_c$ Deratings $I_R - V_R$ Characteristics (per chip) $P_F(AV) - I_F(AV)$ Characteristics $I_o - \text{Fin}$ Characteristics I_{FSM} Characteristics $I_F - V_F$ Characteristics (per chip)

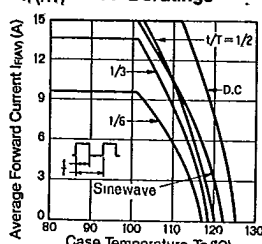
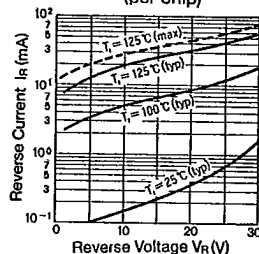
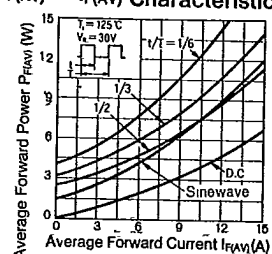
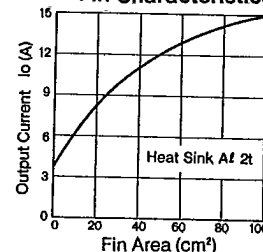
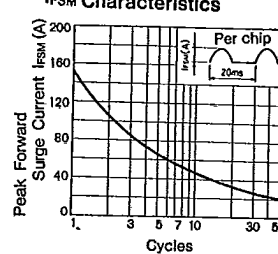
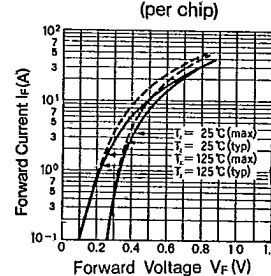
Schottky Barrier Diodes

T-23-01

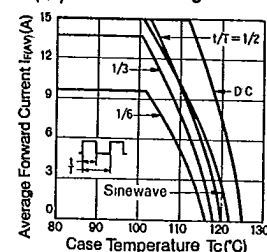
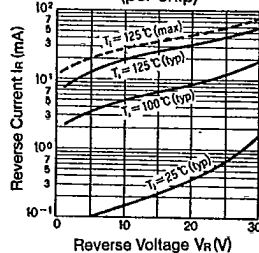
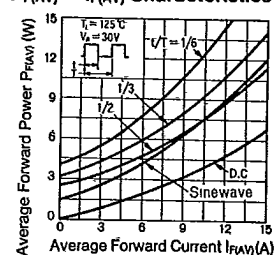
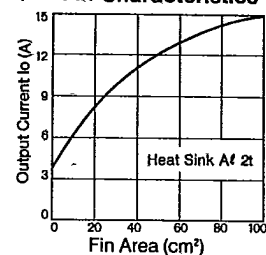
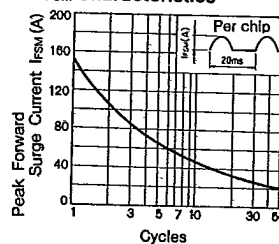
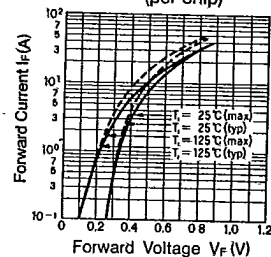
CTB-34S

 $I_F(AV) - T_C$ Deratings $I_R - V_R$ Characteristics (per chip) $P_F(AV) - I_F(AV)$ Characteristics $I_o - \text{Fin}$ Characteristics I_{FSM} Characteristics $I_F - V_F$ Characteristics (per chip)

CTB-33 Series

 $I_F(AV) - T_C$ Deratings $I_R - V_R$ Characteristics (per chip) $P_F(AV) - I_F(AV)$ Characteristics $I_o - \text{Fin}$ Characteristics I_{FSM} Characteristics $I_F - V_F$ Characteristics (per chip)

CTB-34

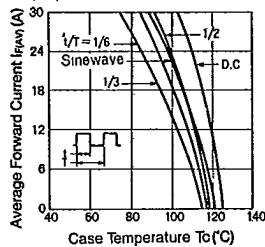
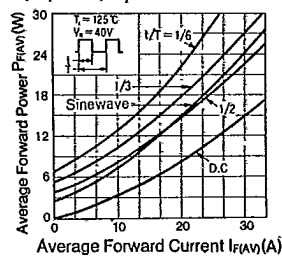
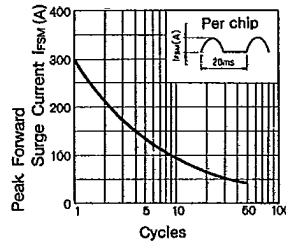
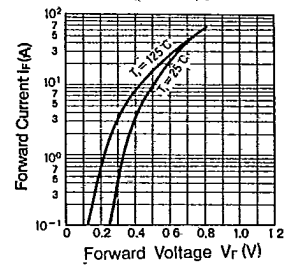
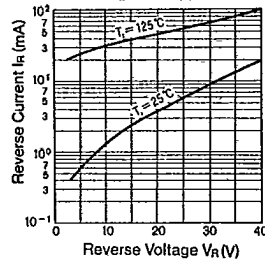
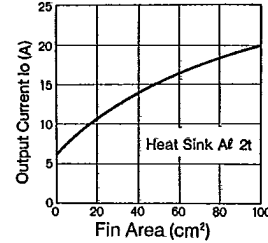
 $I_F(AV) - T_C$ Deratings $I_R - V_R$ Characteristics (per chip) $P_F(AV) - I_F(AV)$ Characteristics $I_o - \text{Fin}$ Characteristics I_{FSM} Characteristics $I_F - V_F$ Characteristics (per chip)

Characteristics

T-23-01

CTB-33M

CTB-34M

 $I_F(AV) - T_C$ Deratings $P_F(AV) - I_F(AV)$ Characteristics I_{FSM} Characteristics $I_F - V_F$ Characteristics (per chip) $I_R - V_R$ Characteristics (per chip) $I_o - Fin$ Characteristics

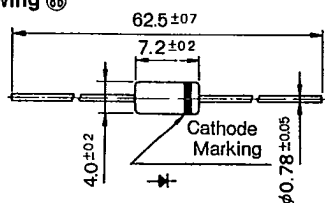
Avalanche Diodes

■ $V_{RM}: 40 \sim 400V$ ■ $I_{ZSM}: 0.1 \sim 3.0A$

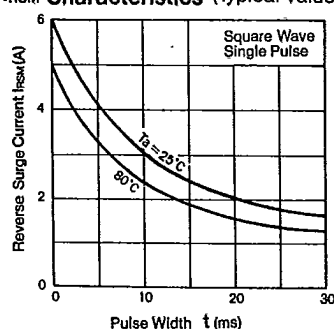
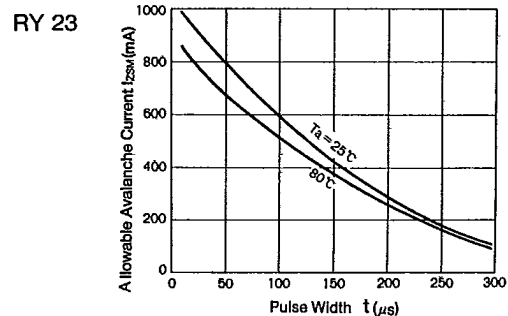
RM/R /RY

Rating/ Characteristics	Absolute Maximum Ratings				Electrical Characteristics (Ta = 25°C)						Others				
	V _{RM} (V)	I _{ZSM} (A)	T _J (°C)	T _{stg} (°C)	V _Z (V)	I _R (μA)	I _{R(H)} (μA)	J (V/°C)	γ _Z (%/°C)	R _Z (Ω)	Outline Drawing	Weight(g)	Taping	Application	
Type No.		Square Wave Single Pulse			I _Z = 1mA Instantaneous	V _R = V _{RM}	V _R = V _{RM}	I _Z = 1mA	I _Z = 1mA	I _Z = 0.5 ~ 1.5A					
RM 25	40	3.0	-40 ~ +130		50 ~ 61.5	5.0	20 (Ta = 80°C)	—	0.09typ.	5 max	Ⓑ	0.44	Available	For Surge Absorption	
RM 26	50				60 ~ 70										
R 2M	130	1.0(100μs)	-40 ~ +150	135 ~ 180	10	50(Ta = 100°C)	+0.15typ.	—	—	0.44					
RY 23	200	0.1(100μs)	-40 ~ +130	250 ~ 400		50				—		—			0.44
RY 24	400			400 ~ 450		(Ta = 80°C)									

Outline Drawing ⑧



⑧ Plastic Molded, Flammability : UL94V-0 or Equivalent

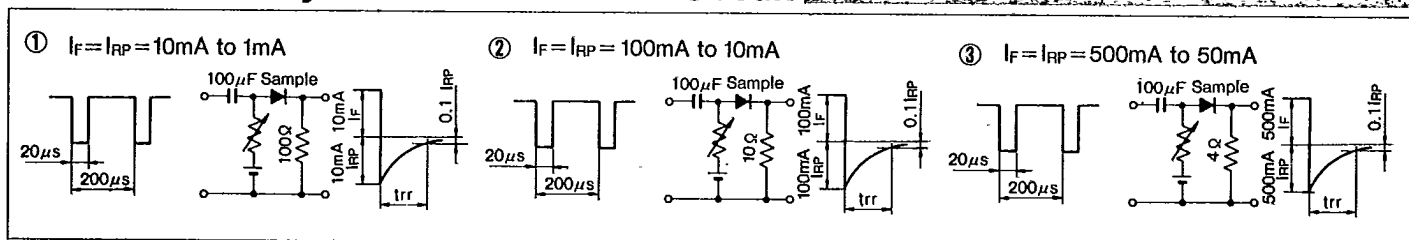
 I_{RSM} Characteristics (Typical Value) I_{ZSM} Characteristics (Typical Value)

Symbols/trr Measurement Circuit

Symbols

V_{RSM}	Peak Reverse Surge Voltage	I_{RSM}	Peak Reverse Surge Current	T_{stg}	Storage Temperature
V_{RM}	Peak Reverse Voltage	I_R	Reverse Current	t_{rr}	Reverse Recovery Time
V_{P-P}	Reverse Voltage (Peak to Peak)	I_{RP}	Peak Reverse Current	C_t	Total Capacitance Between Terminals
V_R	Reverse Voltage	$I_{R(H)}$	Reverse Current (High Temperature)	$R_{th(j-c)}$	Thermal Resistance, Junction to Case
V_F	Forward Voltage	I_Z	Avalanche Current	r_z	Temperature Coefficient of Breakdown Voltage
V_B	Breakdown Voltage	I_{ZSM}	Allowable Avalanche Current	R_z	Equivalent Resistance of Breakdown Region
I_o	Average Rectified Forward Current	T_a	Ambient Temperature	$P_{F(AV)}$	Average Forward Power Dissipation
I_F	Forward Current	T_j	Junction Temperature	I_t^2	I_t^2 limiting Value
$I_{F(AV)}$	Average Forward Current	T_{opr}	Operating Ambient Temperature		
I_{FSM}	Peak Forward Surge Current	T_c	Case Temperature		

Reverse Recovery Time Measurement Circuit



Taping Specifications

Excluding High Voltage Diodes

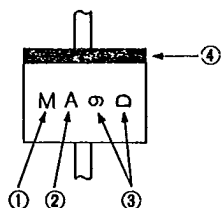
Designation	Dimension (in mm)	Packaging Dimension and Marking	Quantity
V Add Suffix [V] to Type No.	Tape Carrier Method (1) Right side of taping direction is cathode. (2) Place electrode side down when casing. (3) Provide leader tape of 150~200mm at beginning of tape. (4) Provide space of more than 10 pitches each for beginning and end of tape.	Reel	1,800 pcs per reel
V Add Suffix [V] to type No.	Axial Taping	Reel	5,000 pcs per reel (2.7 ϕ body) 3,000 pcs per reel (4.0 ϕ body)

Taping Specifications

Designation	Dimension (in mm)	Packaging Dimension and Marking	Quantity
V1 Add Suffix [V1] to Type No.	Axial Taping 	Ammunition Pack 	2,000 pcs per box (2.7 ϕ body) 1,000 pcs per box (4.0 ϕ body)
VO Add Suffix [VO] to Type No.	Axial Taping 	Ammunition Pack 	2,000 pcs per box (2.7 ϕ body) (2.4 ϕ body)
V3 Add Suffix [V3] to Type No.	Axial Taping 	Reel 	1,500 pcs per reel (5.2 ϕ body)
V4 Add Suffix [V4] to Type No.	Axial Taping 	Ammunition Pack 	1,000 pcs per box (5.2 ϕ body)
W Add Suffix [W] to Type No.	Radial Taping 	Ammunition Pack 	4,000 pcs per box (2.7 ϕ body) (0.6 ϕ lead)
WS Add Suffix [WS] to Type No.	Radial Taping (Applicable to AO Series) 	Ammunition Pack 	2,500 pcs per box (2.4 ϕ body)
WK Add Suffix [WK] to Type No.	Radial Taping (Applicable to AO Series) 		

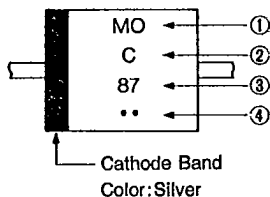
Marking Guide

1 Small TMD



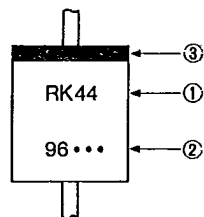
- ① Type Designation (in abbreviation)
AM01 is abbreviated as M.
- ② Class Designation
Z: 200V, No Letter: 400V, A: 600V
- ③ A: Year (Last Number of AD Year)
B: Month (Jan. to Sept. are represented by numbers 1 to 9 respectively, and Oct., Nov., and Dec. are abbreviated as O, N and D respectively)
- ④ Cathode Band: Successive Band, however AU02 Type is Non-Successive Band.

2 E/EO Type TMD



- ① Type Designation (in abbreviation)
EM01 is abbreviated as MO, EM2 is abbreviated as M2.
- ② Class Designation
Z: 200V, No Letter: 400V, A: 600V
B: 800 V, C: 1000V, F: 1500V
However, EU02A to be marked 2A, and EU2YX to be marked Y.
- ③ Abbreviations Representing Production Period
A: Year (Last Number of AD Year)
B: Month (1~9, O, N, D)
- ④ Production Period Divided in 3 ten day terms
• : 1st 10days •• : 2nd 10days ••• : 3rd 10days

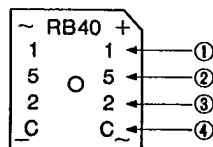
3 R Type TMD



- ① Type Designation: Mark in 2 sets
- ② Production Period: Mark in 4 sets
A: Year (Last Number of AD Year)
B: Month (1~9, O, N, D)
- ③ Production Period Divided in 3 ten day terms
• : 1st 10days •• : 2nd 10days ••• : 3rd 10days
- ④ Cathode Band Color: Silver: For Power Supply
Yellow: For Middle Speed
Red : For High Speed and Ultra-High Speed

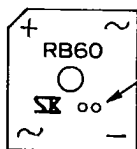
4 RB40/60

(RB40 Series)



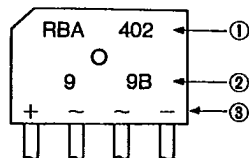
- ① Peak Reverse Voltage Designation
1, 2, 4, 6, C
Production Period
- ② Year (Last Number of AD Year)
- ③ Month (1~9, O, N, D)
- ④ Divided in 3 ten day terms
A: 1st 10days, B: 2nd 10days
C: 3rd 10days
Color Designation: Silver

(RB60 Series)



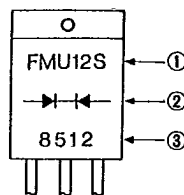
Dot Designation RB601 Violet
RB602 No Color
RB604 Blue
RB606 White

5 RBV/RBA



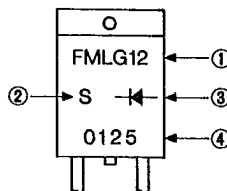
- ① Type Designation
- ② Lot Number
1st : Year (Last Number of AD Year)
2nd: Month (1~9, O, N, D)
3rd : Divided 1~3 ten day Terms
A: 1st 10 days B: 2nd 10 days
C: 3rd 10 days
- ③ In-Put Designation

6 TO220 Type (FM or CT Type)



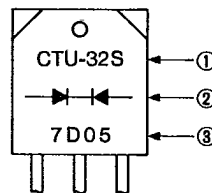
- ① Type Designation
Show FMU-12S as FMU12S.
- ② Polarity: Rectifier Symbols
- ③ Lot Number (Laser Marking)
1st : Year (Last Number of AD Year)
2nd : Month (0~9, O, N, D)
3rd, 4th: Day

7 TO220 Type (FM or CT Type, single chip)



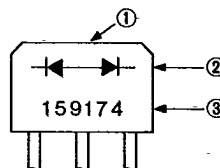
- ① Type Designation: Omit Last Letter
Show FML-G12S as FMLG12.
- ② Last Letter of Type Designation
- ③ Polarity: Rectifier Symbols
- ④ Lot Number (Laser Marking)
1st : Year (Last Number of AD Year)
2nd : Month (0~9, O, N, D)
3rd, 4th: Day

8 TO3P Type (FM or CT Type)



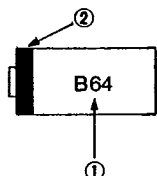
- ① Type shown in full designation
However, CTB-34/34S/34M are marked as CTB-34, CTU-G3DR is marked as CTUG3DR.
- ② Polarity: Rectifier Symbols
- ③ Lot Number:
1) M, U, G and L Types
First Number : Last Digit of AD Year
Second Number : Month
Third and Fourth Numbers: Day
Fifth Number : None
2) For types CTB-34/34S/34M, the fifth letter shows type designation. If no fifth number, the type is CTB-33 or CTB-34.
3) Marking Color: Silver

9 MI-10/15 Type



- ① MI-10/15 is die-stamped on the top of the case.
- ② Rectifier Symbols
- ③ Lot Number:
First Number : Peak Reverse Voltage:
(Letter) 0=50V, 1=100V, 2=200V,
4=400V, 6=600V, C=1000V
Second Number : Last Digit of AD Year
Third Number : Month
Fourth and Fifth Numbers: Day
Sixth Number : Production number and
U: Voltage Doubler Type

10 SFP Type



- ① Type Designation:
SFPB-64 is abbreviated at B64.
- ② Cathode Band