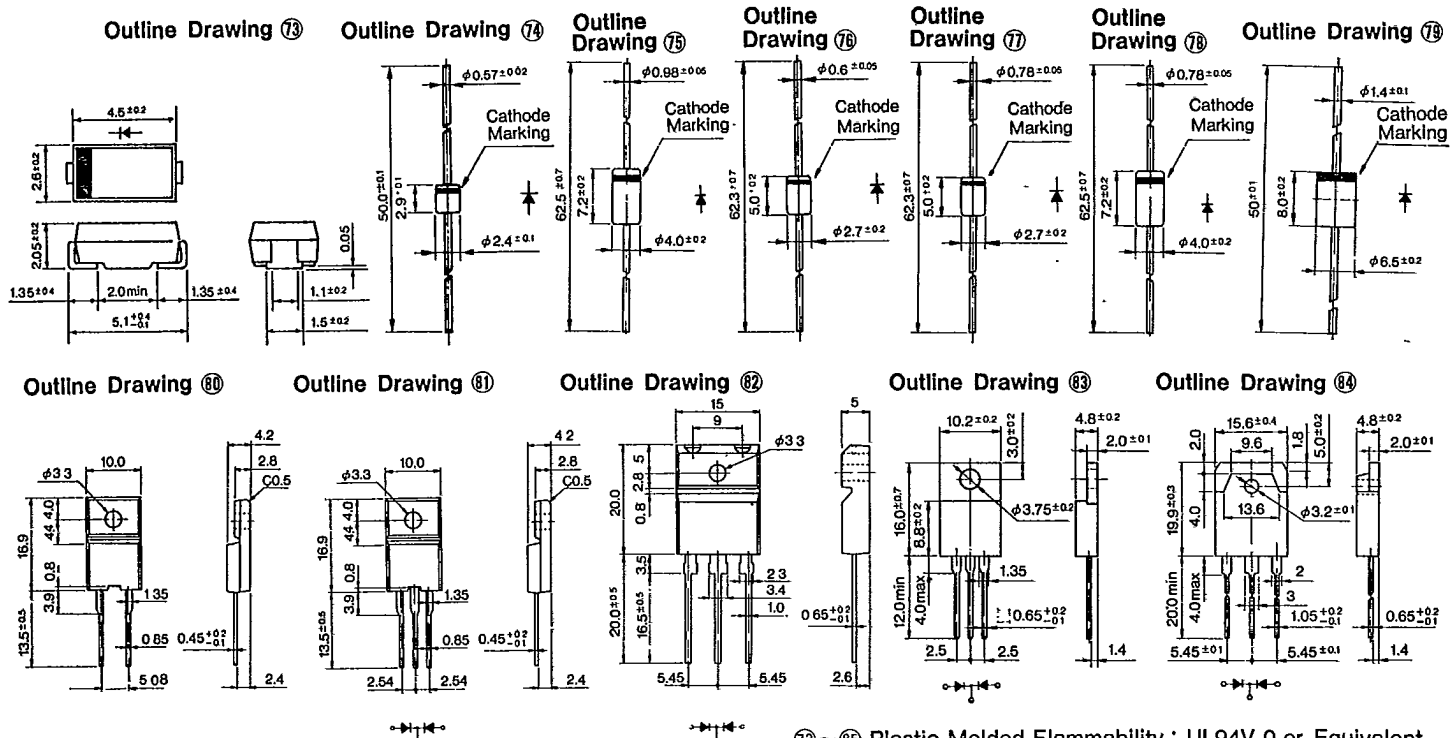


Schottky Barrier Diodes

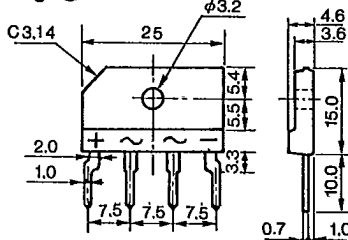
V_{RM}: 30~90V I_o: 0.7~30A

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 ² _t (A ² S)	T _J (°C)	T _{stg} (°C)	V _F (V)	I _F (mA)	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		0.7	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						0.7	10			0.62							7.5					
AK 06	60	60	1.0	40	0.81	5.0																		
AK 09	90	90					0.6	1.0	0.7			50												
EK 03	35	30	1.0	40				0.55	1.5	5.0	50	0.2		76										
EK 04	45	40						0.7	10	0.62	7.5													
EK 06	60	60	1.5	25	0.81	2.0	1.0			15	0.1							77	0.3					
EK 09	90	90						0.6	1.0															0.7
EK 13	35	30	1.7	60				0.55	2.0	5.0	50		0.2		78	0.45								
EK 14	45	40						0.7	10	0.62	1.5		1.0											
EK 16	60	60										0.6						1.0	0.7	10				
EK 19	90	90						0.6	1.0	0.7	10													
RK 13	35	30	1.5	25				0.55	2.0	5.0	50	0.2		79	0.6									
RK 14	45	40						0.7	10	0.62	1.5	1.0						15	0.1					
RK 16	60	60																		0.6	1.0	0.7	10	
RK 19	90	90						0.6	1.0	0.7	10													
RK 33	35	30	2.0	50				0.55	2.5	5.0	50	0.2		80	0.45									
RK 34	45	40						0.7	10	0.62	1.5	1.0						15	0.1					
RK 36	60	60																		0.6	1.0	0.7	10	
RK 39	90	90						0.6	1.0	0.7	10													
RK 43	35	30	3.0	80				0.55	3.0	5.0	50	0.2		81	0.6									
RK 44	45	40						0.7	10	0.62	1.5	1.0						15	0.1					
RK 46	60	60																		0.6	1.0	0.7	10	
RK 49	90	90						0.6	1.0	0.7	10													
FMB-G14L	45	40	5.0	60	18	-40 ~ +125		0.55	5.0	5.0	100	0.1	82	2.1	Available									
FMB-G24H	45	40	10	150	112.5				10	10	65													
FMB-23	35	30	4.0	50					5.0	5.0	35													
FMB-24	45	40		0.7	10				0.62	1.5	1.0						15	0.1						
FMB-26	60	60																	0.6	1.0	0.7	10		
FMB-29	90	90		0.6	1.0				0.7	10														
FMB-24M	45	40	6.0	60	18			0.55	7.5	7.5	50		83	5.5										
FMB-24H	40	40	15	100	50				5.0	5.0	35													
FMB-23L	35	30	10	60					5.0	5.0	35													
FMB-24L	48	40		50	12.5				4.0	2.5	50													
FMB-26L	60	60		60	18				6.0	5.0	35													
FMB-29L	90	90		60	18				6.0	5.0	35													
FMB-33S	35	30	12	75				0.55	7.5	10	65	0.1	84	4.25										
FMB-34S	48	40		150					7.5	5.0	75													
FMB-33	35	30		15	75				28	10	10						60							
FMB-34	48	40			100				50	15	20						100							
FMB-36	60	60	30	300				0.55	10	15	60	0.1	85	4.25										
FMB-39	90	90		150	112.5				10	15	60													
FMB-33M	35	30		300					15	20	100													
FMB-34M	48	40		150	112.5				15	20	100													
FMB-36M	60	60	20	300				0.55	10	15	60	0.1	86	4.25										
FMB-39M	90	90		150	112.5				10	15	60													
CTB-24	45	40	4.0	60				0.55	2.0	5	50	0.2	87	2.6										
CTB-24L	48	40	10	60					5.0	5	35													
CTB-33S	35	30	12	75					6.0	5	40													
CTB-34S	48	40		150					6.0	5	35													
CTB-33	35	30	15	300				0.55	10	10	80	0.1	88	6.1										
CTB-34	48	40		150					10	10	65													
CTB-33M	35	30		300					15	20	100													
CTB-34M	48	40		150					15	20	100													
RBA-406B	60	60	4.0	40				0.62	2.0	2.0	20	100/100	5.0	89	4.25									

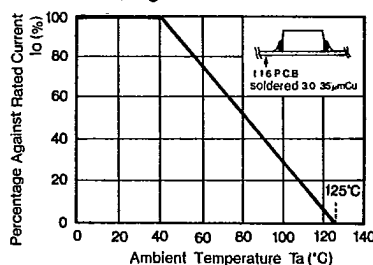


Outline Drawing ⑧⑤



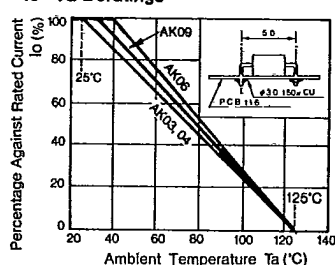
SFPB-54.64.56.59

Io-Ta Deratings

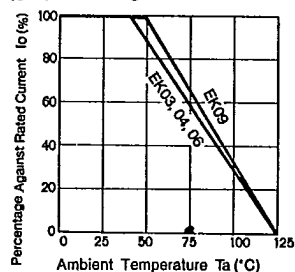


AK 03.04.06.09

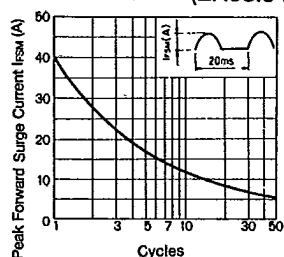
Io-Ta Deratings



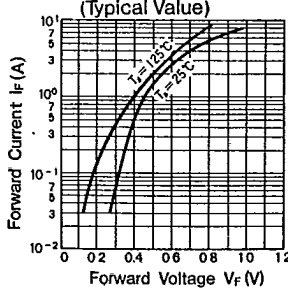
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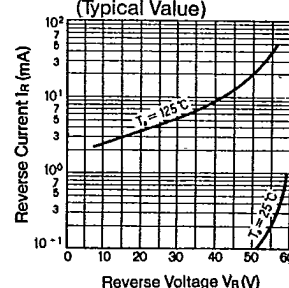
IFSM Characteristics (EK03.04)



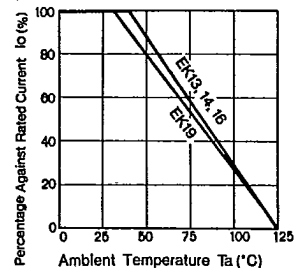
IF-VF Characteristics (Typical Value)



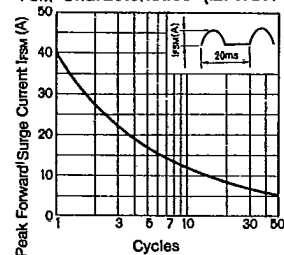
IR - VR Characteristics (Typical Value)



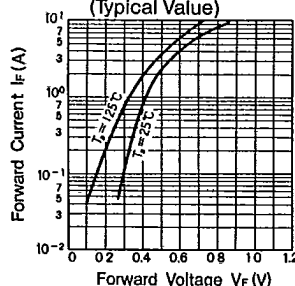
Io-Ta Deratings



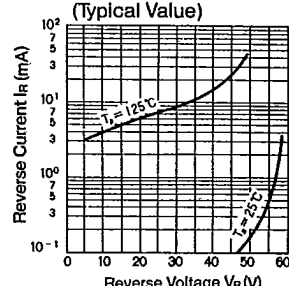
IFSM Characteristics (EK13.14)



IF-VF Characteristics (Typical Value)



IR - VR Characteristics (Typical Value)

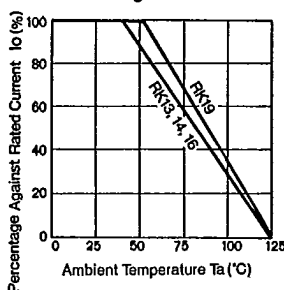


Schottky Barrier Diodes

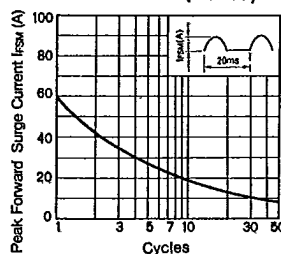
T-23-01

RK 13
RK 14
RK 16
RK 19

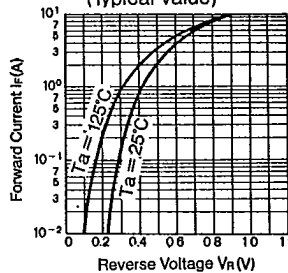
Io - Ta Deratings



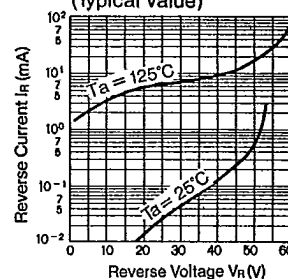
IFSM Characteristics (RK 13, 14)



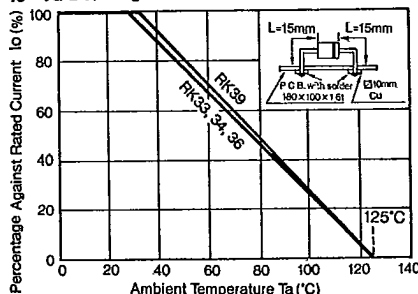
IF - VF Characteristics (Typical Value)



IR - VR Characteristics (Typical Value)

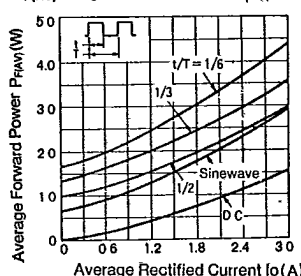
RK 33
RK 34
RK 36
RK 39

Io - Ta Deratings

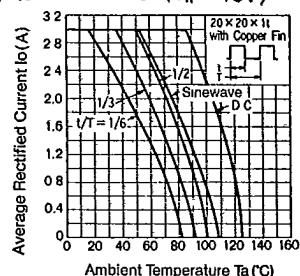


RK 43 RK 44

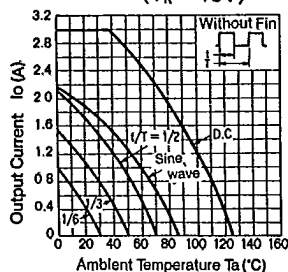
PF(AV) - Io Characteristics (VR = 40V)



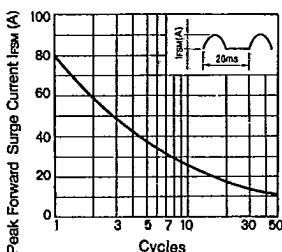
Io - Ta Deratings (VR = 40V)



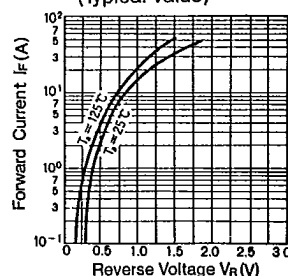
Io - Ta Deratings (VR = 40V)



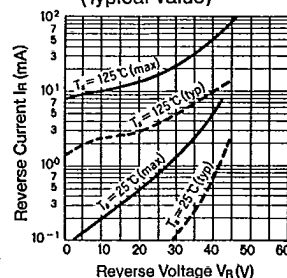
IFSM Characteristics



IF - VF Characteristics (Typical Value)

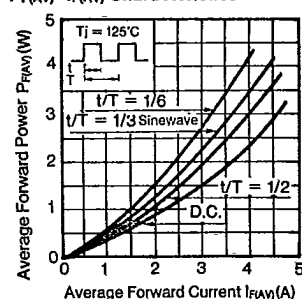


IR - VR Characteristics (Typical Value)

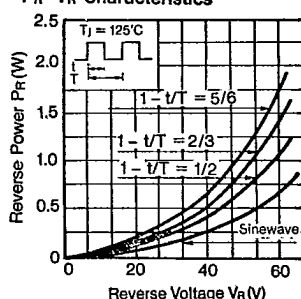


RK 46

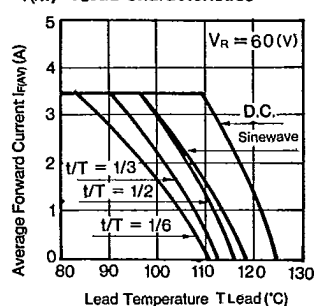
PF(AV) - IF(AV) Characteristics



PR - VR Characteristics

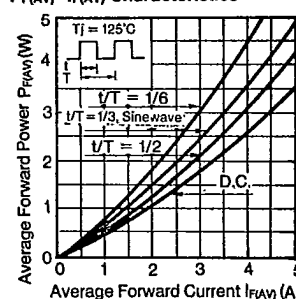


IF(AV) - TLead Characteristics

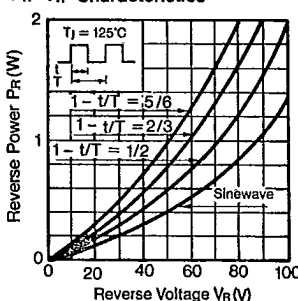


RK 49

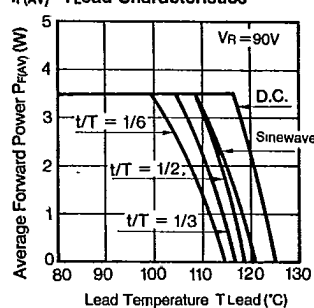
PF(AV) - IF(AV) Characteristics



PR - VR Characteristics



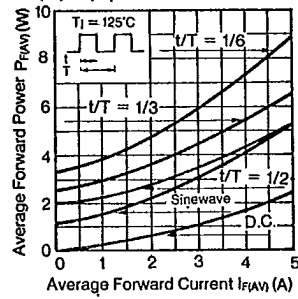
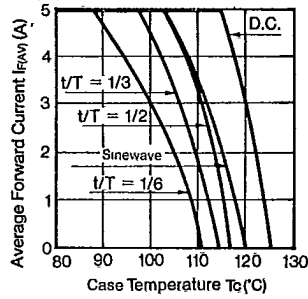
IF(AV) - TLead Characteristics



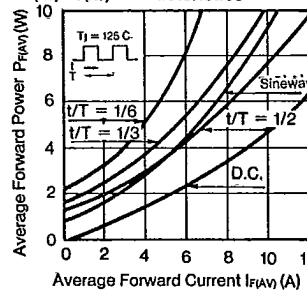
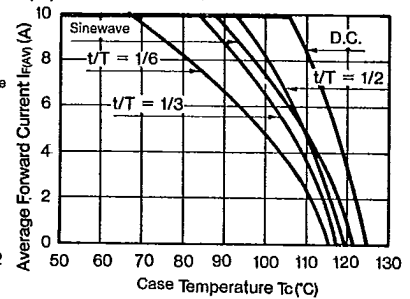
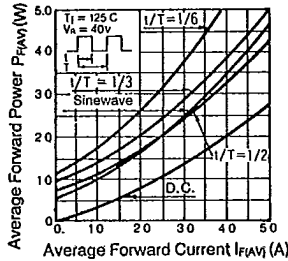
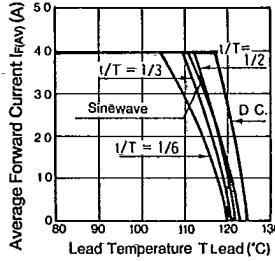
Characteristics

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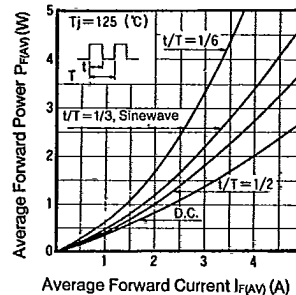
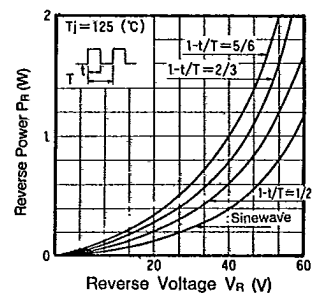
FMB-G14L

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

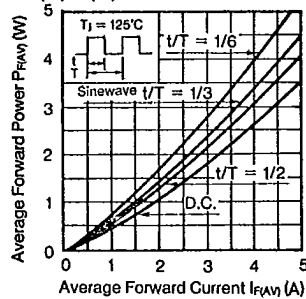
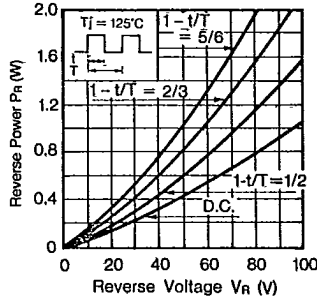
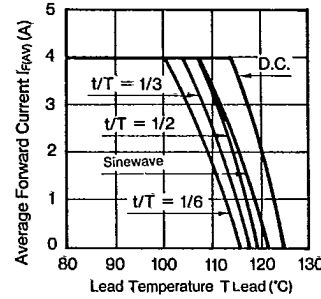
FMB-G24H

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

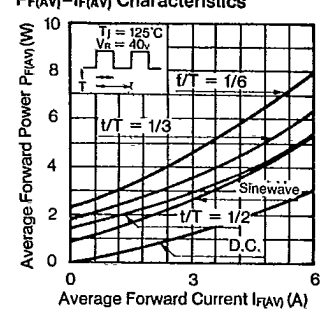
FMB-26

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

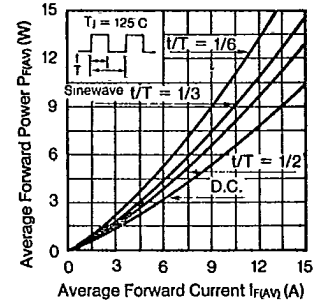
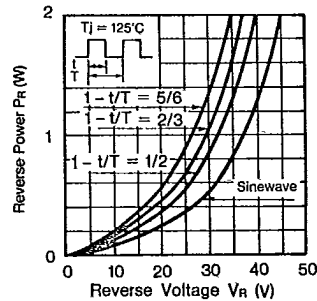
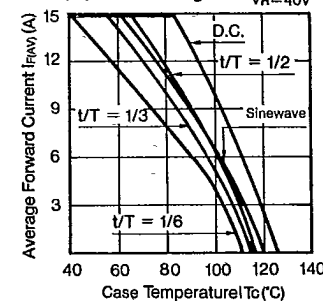
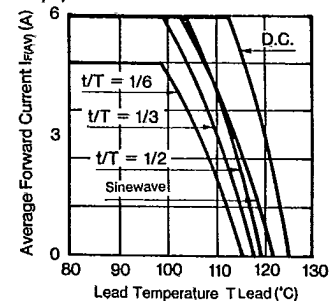
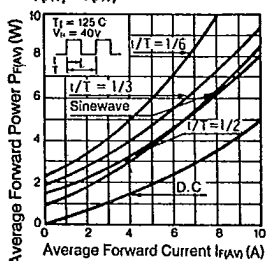
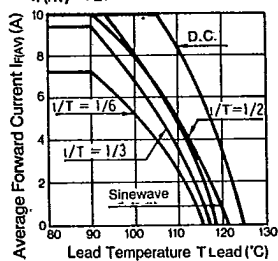
FMB-29

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

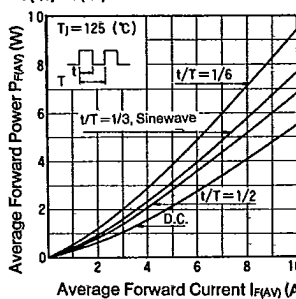
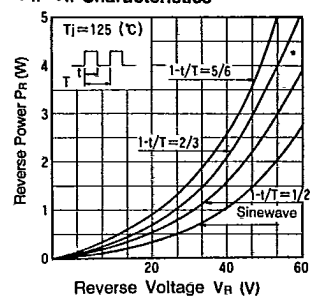
FMB-24M

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

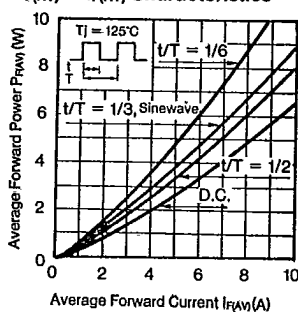
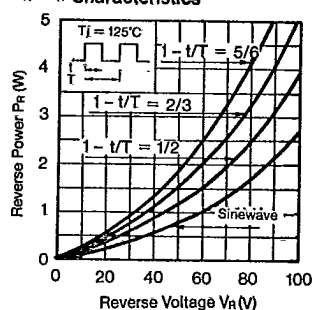
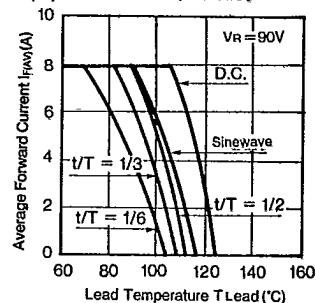
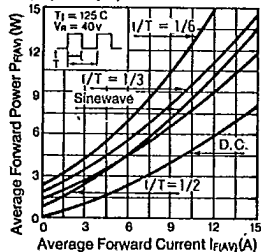
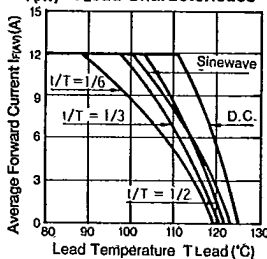
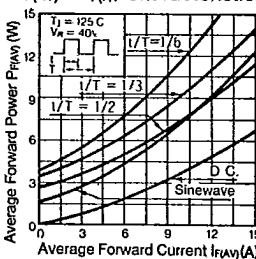
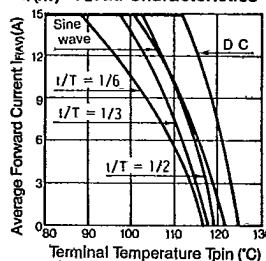
FMB-26L

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

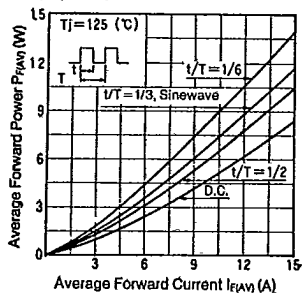
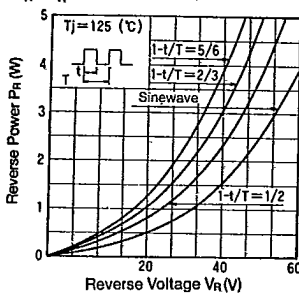
Schottky Barrier Diodes

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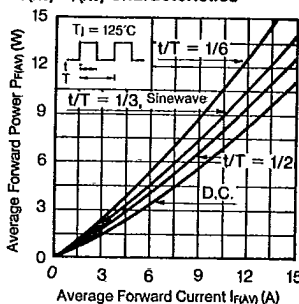
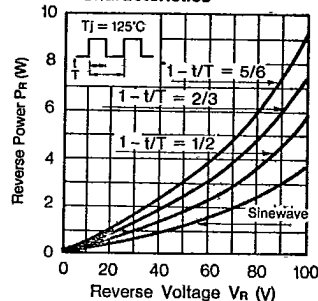
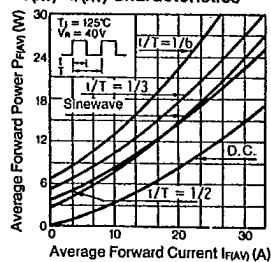
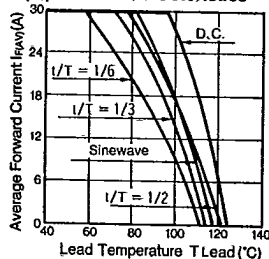
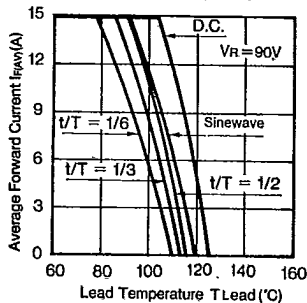
FMB-29L

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

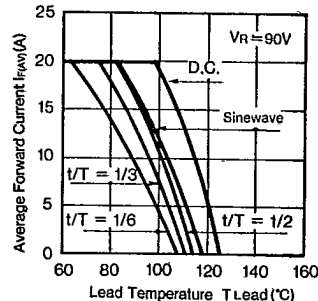
FMB-36

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

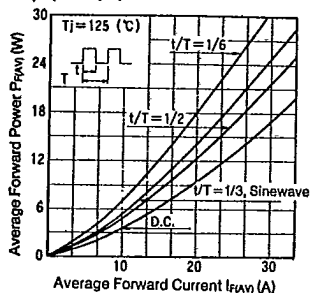
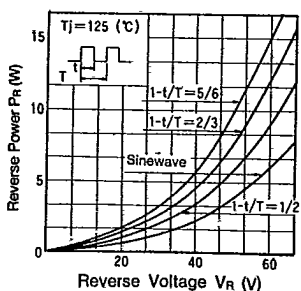
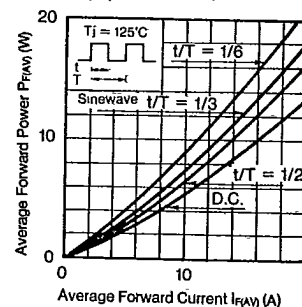
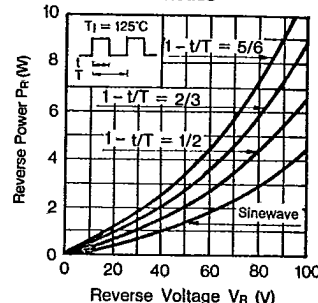
FMB-39

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

FMB-39M

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

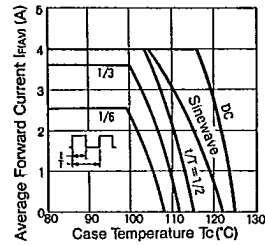
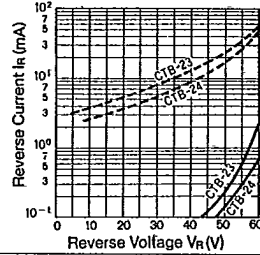
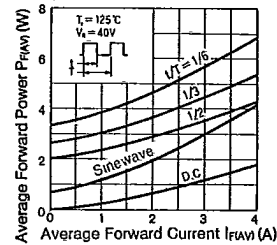
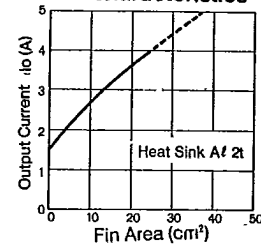
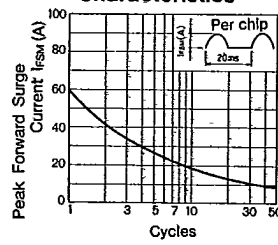
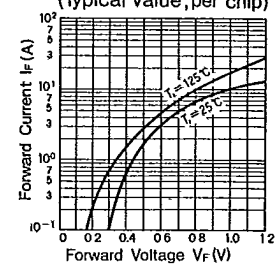
FMB-36M

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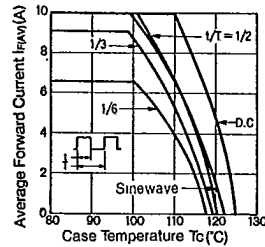
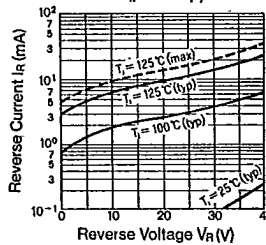
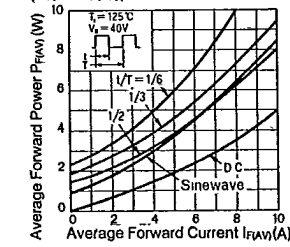
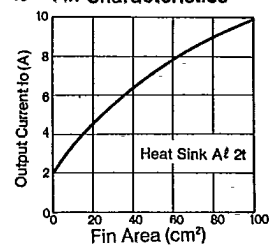
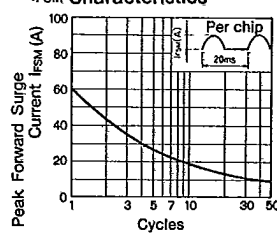
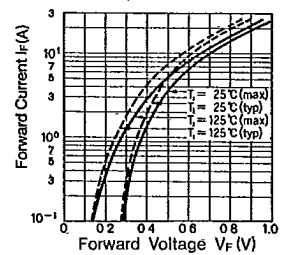
Characteristics

T-23-01

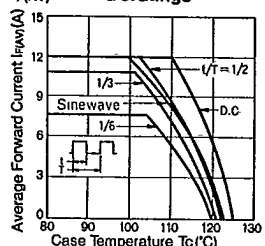
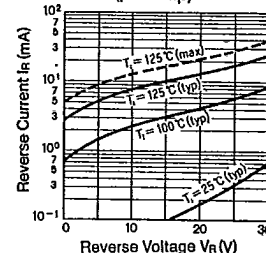
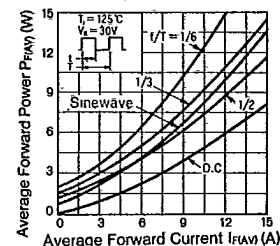
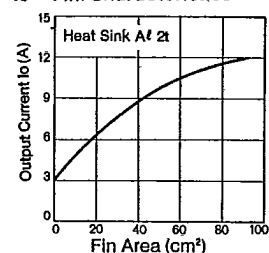
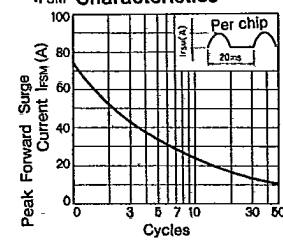
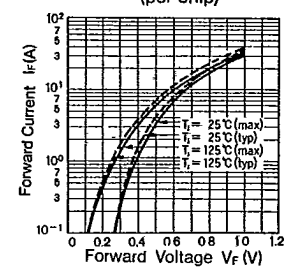
CTB-24

 $I_{F(AV)} - T_c$ 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)

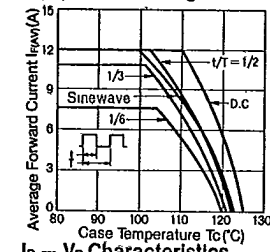
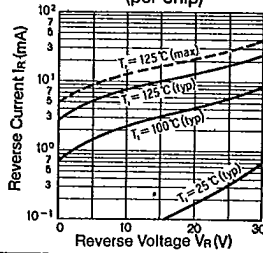
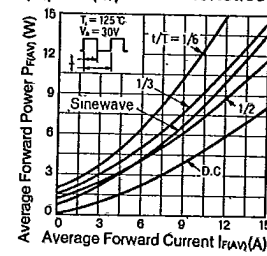
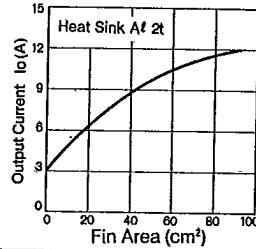
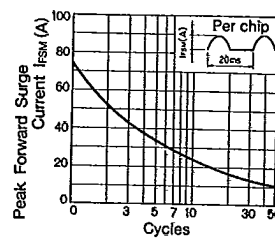
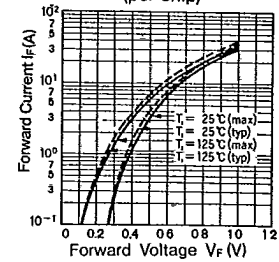
CTB-33S

 $I_{F(AV)} - T_c$ 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)

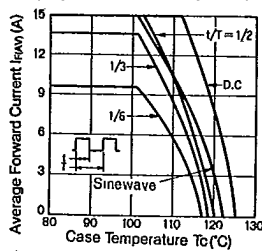
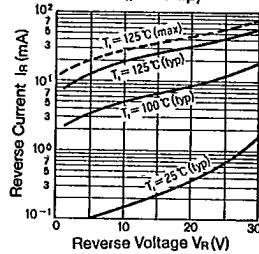
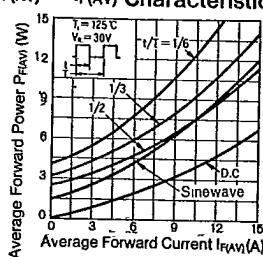
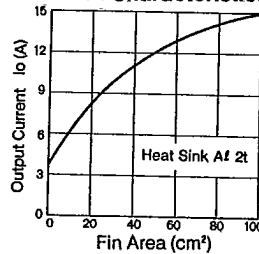
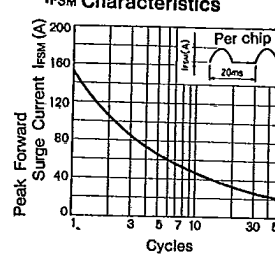
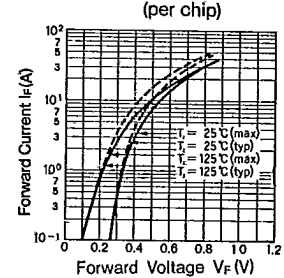
Schottky Barrier Diodes

T-23-01

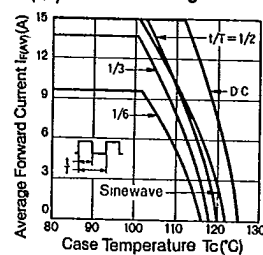
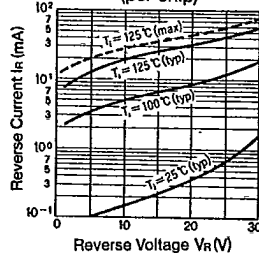
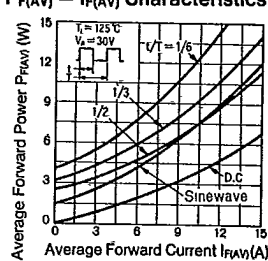
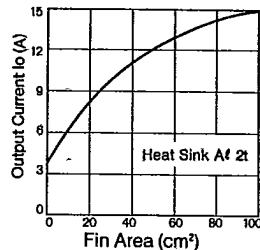
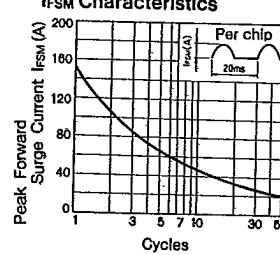
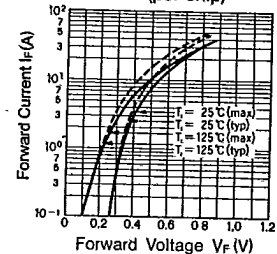
CTB-34S

 $I_F(AV) - T_C$ 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)

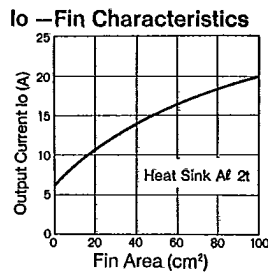
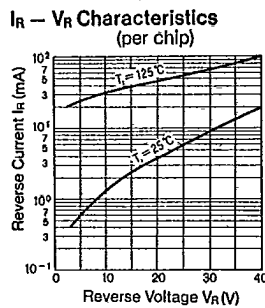
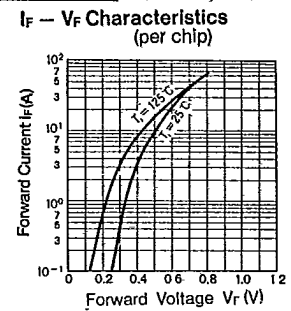
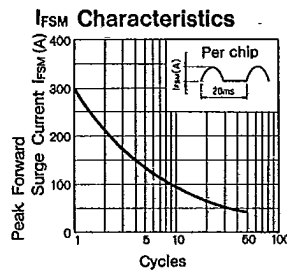
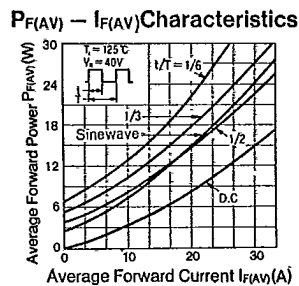
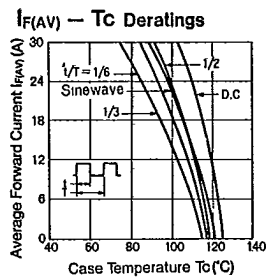
CTB-34

 $I_F(AV) - T_C$ 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



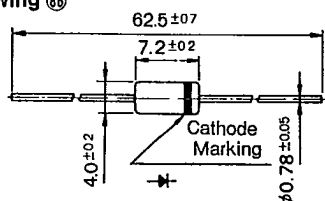
Avalanche Diodes

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

RM/R/R Y

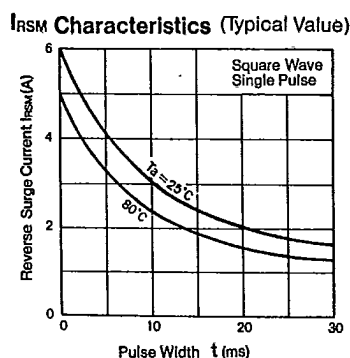
Rating/ Characteristics	Absolute Maximum Ratings				Electrical Characteristics (Ta = 25°C)						Others				
	V _{RM} (V)	I _{ZSM} (A)	T _J (°C)	T _{stg} (°C)	V _Z (V)	I _R (μA)	I _{R(H)} (μA)	J (V/°C)	γ _Z (%/°C)	R _Z (Ω)	Outline Drawing	Weight(g)	Taping	Application	
Type No.		Square Wave Single Pulse			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

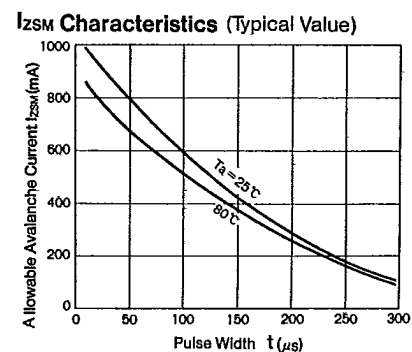


⑧ Plastic Molded, Flammability : UL94V-0 or Equivalent

RM 25
RM 26



RY 23

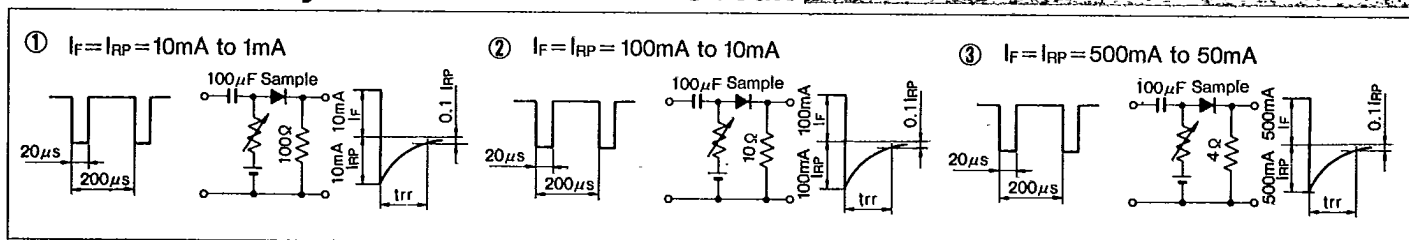


Symbols/trr Measurement Circuit

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

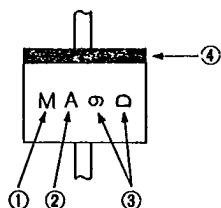
Designation	Dimension (in mm)	Packaging Dimension and Marking	Quantity
V Add Suffix [V] to Type No.	Tape Carrier Method (1) Right side of taping direction is cathode. (2) Place electrode side down when casing. (3) Provide leader tape of 150~200mm at beginning of tape. (4) Provide space of more than 10 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) 		

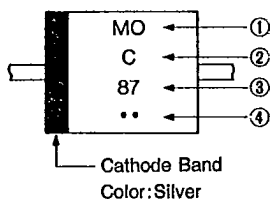
Marking Guide

1 Small TMD



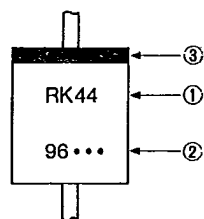
- ① Type Designation (in abbreviation)
AM01 is abbreviated as M.
- ② Class Designation
Z: 200V, No Letter: 400V, A: 600V
- ③ A: Year (Last Number of AD Year)
B: Month (Jan. to Sept. are represented by numbers 1 to 9 respectively, and Oct., Nov., and Dec. are abbreviated as O, N and D respectively)
-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

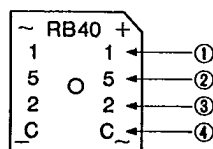
3 R Type TMD



- 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

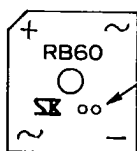
4 RB40/60

(RB40 Series)



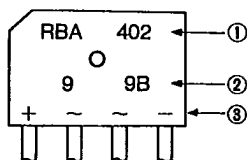
- ① Peak Reverse Voltage Designation
1, 2, 4, 6, C
Production Period
- ② Year (Last Number of AD Year)
- ③ Month (1~9, O, N, D)
- ④ Divided in 3 ten day terms
A: 1st 10days, B: 2nd 10days
C: 3rd 10days
Color Designation: Silver

(RB60 Series)



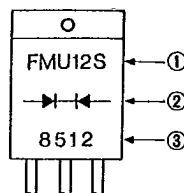
Dot Designation RB601 Violet
RB602 No Color
RB604 Blue
RB606 White

5 RBV/RBA



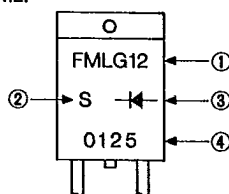
- ① Type Designation
- ② Lot Number
1st : Year (Last Number of AD Year)
2nd: Month (1~9, O, N, D)
3rd : Divided 1~3 ten day Terms
A: 1st 10 days B: 2nd 10 days
C: 3rd 10 days
- ③ In-Put Designation

6 TO220 Type (FM or CT Type)



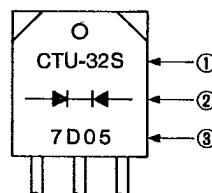
- ① Type Designation
Show FMU-12S as FMU12S.
- ② Polarity: Rectifier Symbols
- ③ Lot Number (Laser Marking)
1st : Year (Last Number of AD Year)
2nd : Month (0~9, O, N, D)
3rd, 4th: Day

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



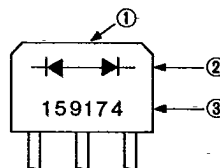
- ① Type Designation: Omit Last Letter
Show FML-G12S as FMLG12.
- ② Last Letter of Type Designation
- ③ Polarity: Rectifier Symbols
- ④ Lot Number (Laser Marking)
1st : Year (Last Number of AD Year)
2nd : Month (0~9, O, N, D)
3rd, 4th: Day

8 TO3P Type (FM or CT Type)



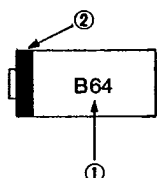
- ① Type shown in full designation
However, CTB-34/34S/34M are marked as CTB-34, CTU-G3DR is marked as CTUG3DR.
- ② Polarity: Rectifier Symbols
- ③ Lot Number:
1) M, U, G and L Types
First Number : Last Digit of AD Year
Second Number : Month
Third and Fourth Numbers: Day
Fifth Number : None
2) For types 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