

2430006 COORS COMPONENTS INC

82D 00111

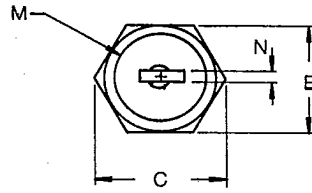
DT-03-19

Series 045

Silicon Rectifiers/Fast Recovery

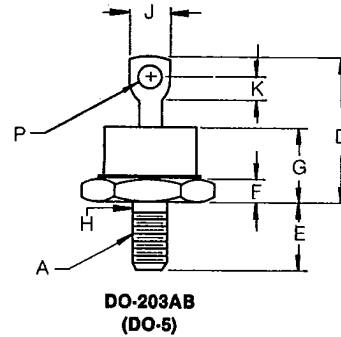
45 AMP Avg; V_{RRM} up to 400 Volts

- 45 Amperes Average, $T_C = 100^\circ\text{C}$
- 200 Nanoseconds Recovery Time at 1.0 Amperes
- 1.15 Volts Forward Voltage at 80 Amperes
- 400 Volts Peak Reverse Voltage Maximum
- Offers lower Forward Characteristics than the 1N3909-1N3913 Family



Dim. Inches	Millimeter		Notes
	Minimum	Maximum	
A	---	---	1
B	.677	.687	17.19 17.44
C	---	.793	20.14
D	---	1.000	25.40
E	.427	.447	10.84 11.35
F	.125	.142	3.17 3.60
G	---	.450	11.43
H	.220	.249	5.59 6.32
J	---	.375	9.52
K	.156	---	3.97
M	---	.590	14.98 Dia.
N	---	.080	2.03
P	.140	.175	3.56 4.44 Dia.

Note 1: Standard polarity: Stud is cathode
 1/4-28 UNF-2A Reverse polarity: Stud is anode
 Note 2:
 Full threads within 2 1/2 threads



**DO-203AB
(DO-5)**

Catalog Number		
Standard Polarity	Reverse Polarity	Peak Reverse Voltage
S045AADF	R045AADF	50
S04501DF	R04501DF	100
S04502DF	R04502DF	200
S04503DF	R04503DF	300
S04504DF	R04504DF	400

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Silicon Rectifiers, Fast Recovery

Series 045

82D 00112 DT-03-19

Electrical Characteristics**Reverse Blocking**

Repetitive peak reverse voltage	V_{RRM}	50V to 400V	$T_C = 150^\circ\text{C}$
Maximum peak reverse current	I_{RRM}	20mA 80 μ A	$T_C = 25^\circ\text{C}$

Forward Direction

Maximum average forward current	$I_{F(AV)}$	45 Amps	Single phase, half-wave rating $T_C = 100^\circ\text{C}$
Maximum surge current	I_{FSM}	600 Amps	One cycle of 60 Hz sinewave
Maximum peak forward voltage	V_{FM}	1.15V max.	$I_{FM} = 90\text{A}, T_C = 25^\circ\text{C}$
Maximum I^2t	I^2t	1500 A ² S	less than 8.33 ms

Reverse Recovery Values

Maximum reverse recovery time	t_{rr}	200 ns	$I_{FM} = 1.0\text{A}, V_R = 30\text{V}$ (see figure 7)
Maximum reverse recovery time	t_{rr}	350 ns	$I_{FM} = 125\text{A}, di/dt = 25\text{A}/\mu\text{s}$ $t_p \geq 10\mu\text{s}, I_{RM(REC)} < 9.0\text{A}$ (see figure 8)

Thermal values

Storage temp range	T_{stg}	-65°C to +175°C
Operating junction temp range	T_J	-65°C to +150°C
Maximum thermal resistance junction to case	$R_{\theta JC}$	1.0°C/W

Mechanical Characteristics

Base	Steel stud and base with a 1/4-28 UNF-2A thread for through mounting on a heat sink. Nickel plating prevents corrosion.
Header	Glass to metal construction.
Weight	Approximately 0.5 ounce (14 grams)
Mounting Position	May be mounted in any position
Mounting Torque	30 inch pounds maximum
Dimensions	In accordance with JEDEC DO-203AB (DO5) outline

Characteristic Curves

Figure 1
Maximum case temperature

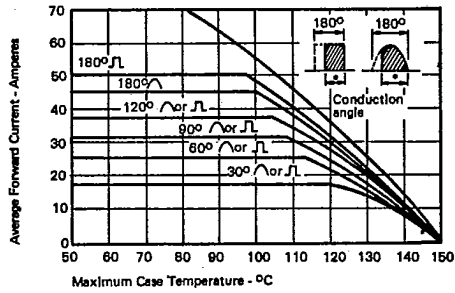


Figure 3
Maximum power dissipation

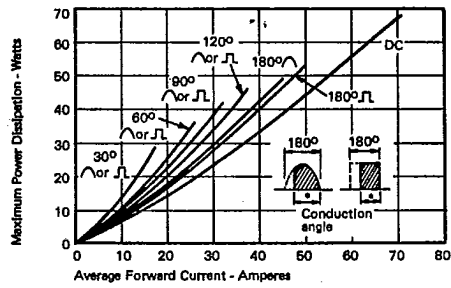


Figure 2
Maximum forward characteristics

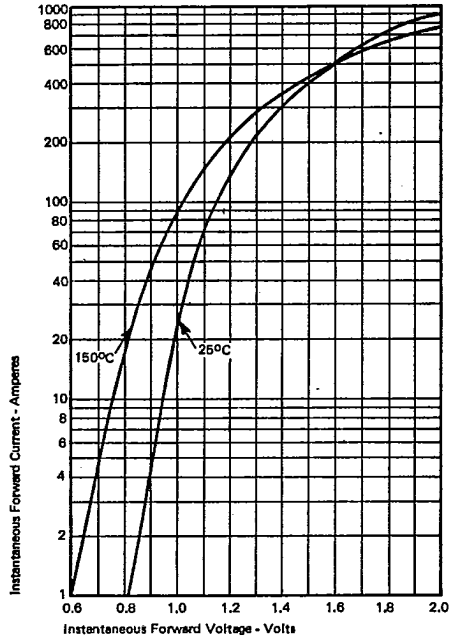


Figure 4
Maximum nonrepetitive surge current at rated load conditions

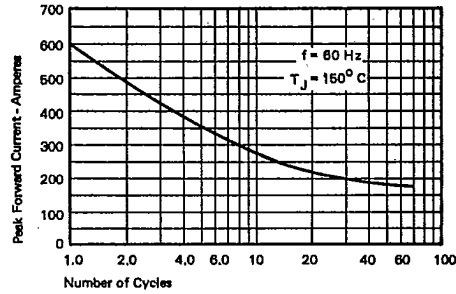


Figure 5
Maximum transient thermal impedance

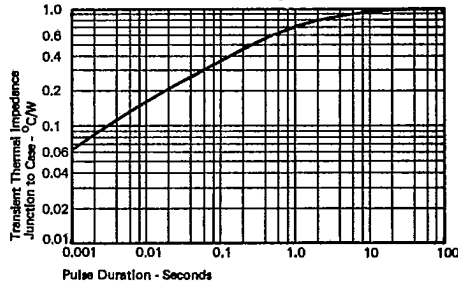


Figure 6
Reverse recovery time

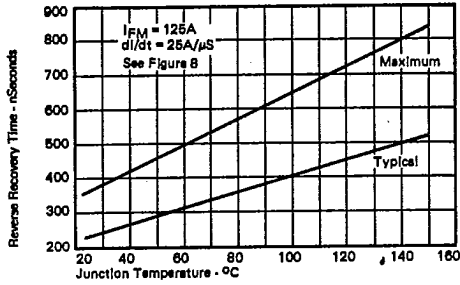


Figure 9
Typical recovered charge at $T_J = 25^\circ\text{C}$

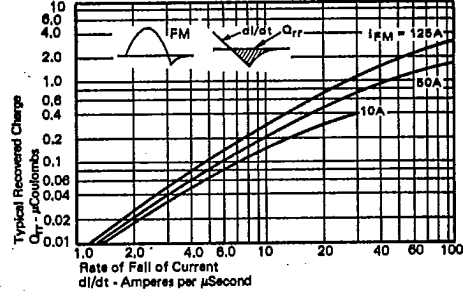


Figure 7
Former JEDEC reverse recovery circuit

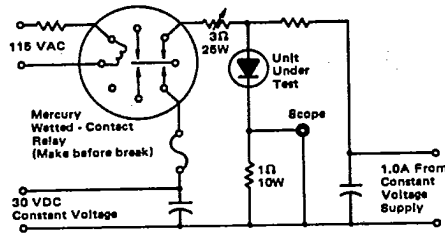


Figure 10
Typical recovered charge at $T_J = 100^\circ\text{C}$

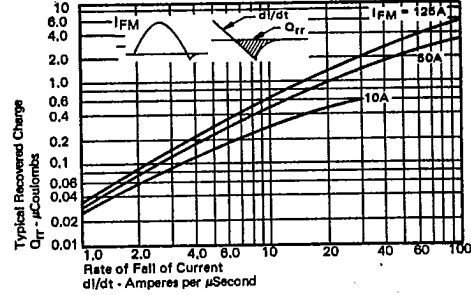


Figure 8
JEDEC Reverse recovery circuit

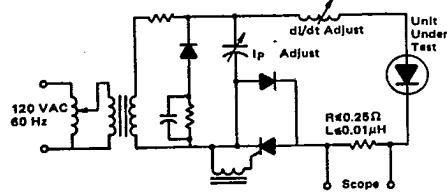


Figure 11
Typical recovered charge at $T_J = 150^\circ\text{C}$

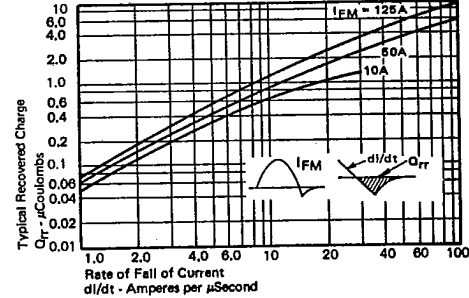


Figure 12
Typical junction capacitance

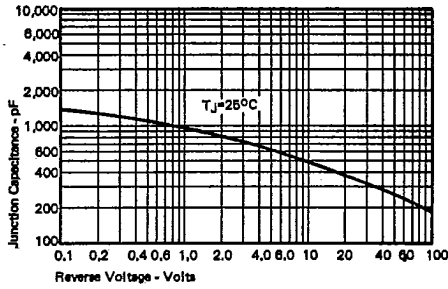


Figure 13
Typical Reverse current
Effects of temperature

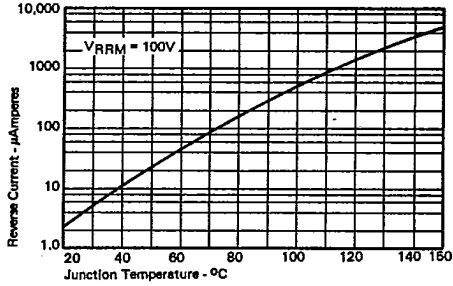


Figure 14
Effects of voltage

