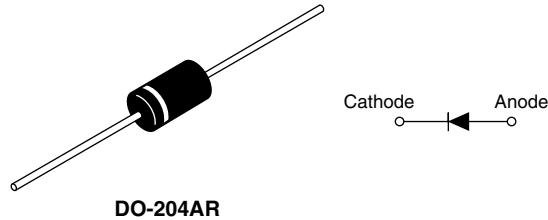


Schottky Rectifier, 9 A



FEATURES

- 150 °C T_J operation
- Low forward voltage drop
- High frequency operation
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Guard ring for enhanced ruggedness and long term reliability
- Lead (Pb)-free plating
- Designed and qualified for industrial level



PRODUCT SUMMARY

$I_{F(AV)}$	9 A
V_R	30/35/40/45 V

DESCRIPTION

The 90SQ axial leaded Schottky rectifier series has been optimized for very low forward voltage drop, with moderate leakage. The proprietary barrier technology allows for reliable operation up to 150 °C junction temperature. Typical applications are in switching power supplies, converters, freewheeling diodes, and reverse battery protection.

MAJOR RATINGS AND CHARACTERISTICS

SYMBOL	CHARACTERISTICS	VALUES	UNITS
$I_{F(AV)}$	Rectangular waveform	9	A
V_{RRM}	Range	30 to 45	V
I_{FSM}	$t_p = 5 \mu s$ sine	2150	A
V_F	9 Apk, $T_J = 125 \text{ }^\circ\text{C}$	0.42	V
T_J	Range	- 55 to 150	$^\circ\text{C}$

VOLTAGE RATINGS

PARAMETER	SYMBOL	90SQ030	90SQ035	90SQ040	90SQ045	UNITS
Maximum DC reverse voltage	V_R	30	35	40	45	V
Maximum working peak reverse voltage	V_{RWM}					

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS		
Maximum average forward current See fig. 5	$I_{F(AV)}$	50 % duty cycle at $T_C = 69 \text{ }^\circ\text{C}$, rectangular waveform	9	A		
Maximum peak one cycle non-repetitive surge current See fig. 7	I_{FSM}	<table border="1"> <tr> <td>5 μs sine or 3 μs rect. pulse</td> <td rowspan="2">Following any rated load condition and with rated V_{RRM} applied</td> </tr> <tr> <td>10 ms sine or 6 ms rect. pulse</td> </tr> </table>	5 μs sine or 3 μs rect. pulse		Following any rated load condition and with rated V_{RRM} applied	10 ms sine or 6 ms rect. pulse
5 μs sine or 3 μs rect. pulse	Following any rated load condition and with rated V_{RRM} applied					
10 ms sine or 6 ms rect. pulse						
Non-repetitive avalanche energy	E_{AS}	$T_J = 25 \text{ }^\circ\text{C}$, $I_{AS} = 1.8 \text{ A}$, $L = 7.4 \text{ mH}$	12	mJ		
Repetitive avalanche current	I_{AR}	Current decaying linearly to zero in 1 μs Frequency limited by, T_J maximum $V_A = 1.5 \times V_R$ typical	1.8	A		



ELECTRICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum forward voltage drop See fig. 1	$V_{FM}^{(1)}$	9 A	$T_J = 25\text{ °C}$	0.48	V
		18 A		0.57	
		9 A	$T_J = 125\text{ °C}$	0.42	
		18 A		0.52	
Maximum reverse leakage current See fig. 2	$I_{RM}^{(1)}$	$T_J = 25\text{ °C}$	$V_R = \text{Rated } V_R$	1.75	mA
		$T_J = 125\text{ °C}$		70	
Maximum junction capacitance	C_T	$V_R = 5 V_{DC}$, (test signal range 100 kHz to 1 MHz) 25 °C		900	pF
Typical series inductance	L_S	Measured lead to lead 5 mm from body		10.0	nH
Maximum voltage rate of change	dV/dt	Rated V_R		10 000	V/ μ s

Note

(1) Pulse width < 300 μ s, duty cycle < 2 %

THERMAL - MECHANICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum junction and storage temperature range	T_J, T_{Stg}			- 55 to 150	°C
Maximum thermal resistance, junction to lead	R_{thJL}	DC operation; see fig. 4 1/8" lead length		8.0	°C/W
Typical thermal resistance, junction to air	R_{thJA}			44	
Approximate weight				1.4	g
				0.049	oz.
Marking device			Case style DO-204AR (JEDEC)	90SQ030	
				90SQ035	
				90SQ040	
				90SQ045	



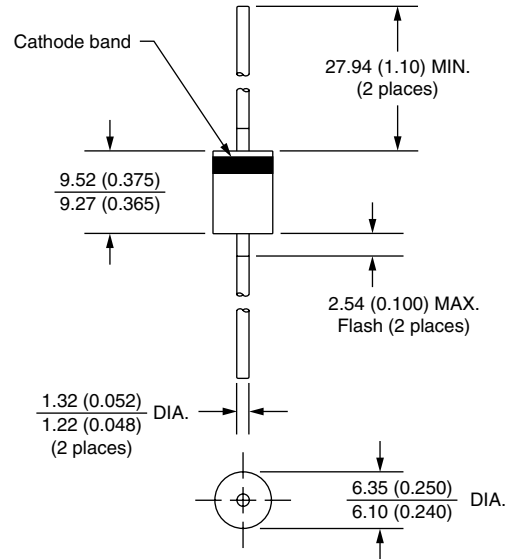
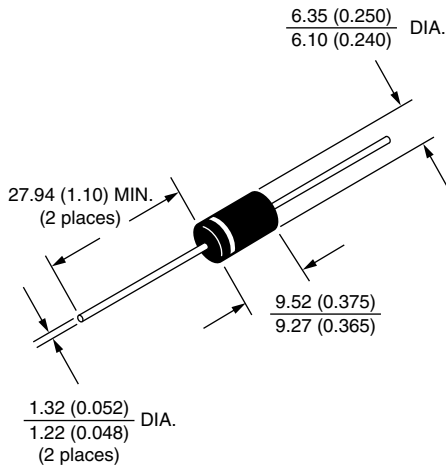
ORDERING INFORMATION TABLE

Device code	90	S	Q	045	TR
	①	②	③	④	⑤
1	-	90 = Current x 10			
2	-	S = DO-204AR			
3	-	Q = Schottky Q.. series			
4	-	Voltage rating			
5	-	• TR = Tape and reel package (1500 pcs) • None = Box package (300 pcs)			

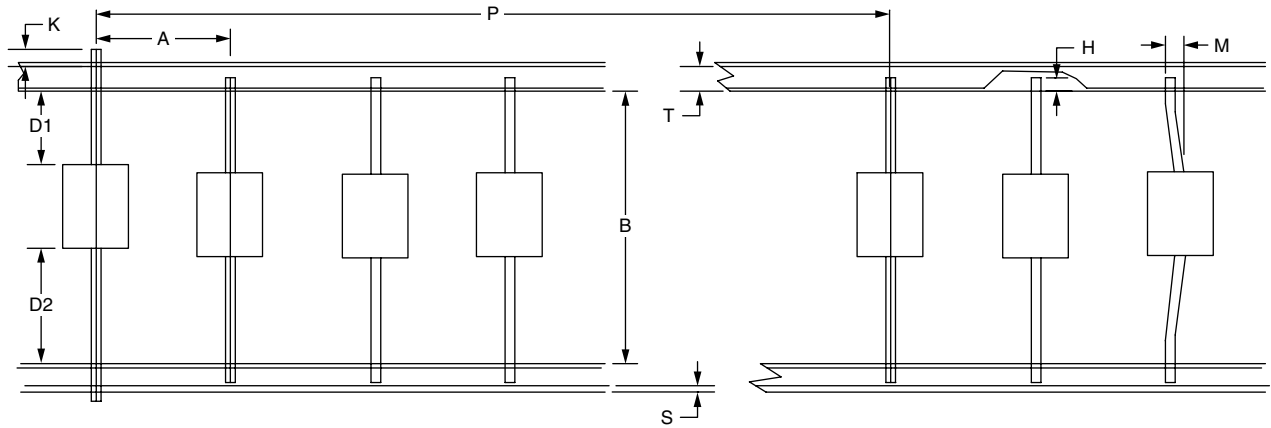
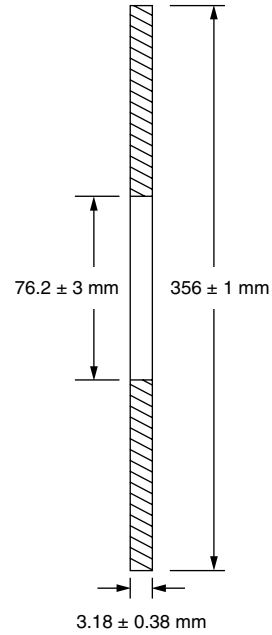
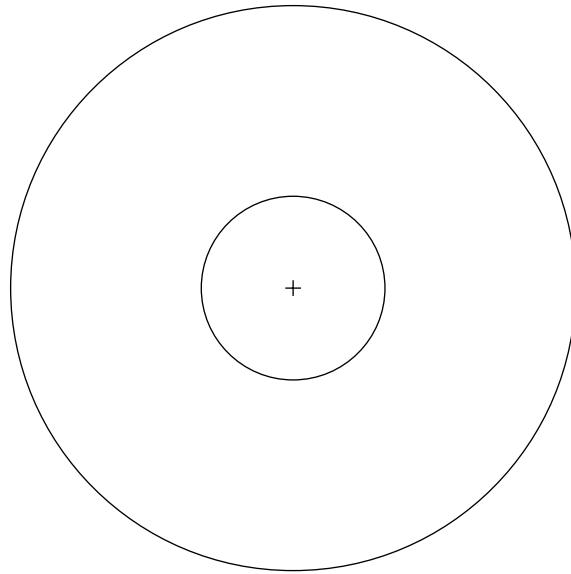
030 = 30 V
035 = 35 V
040 = 40 V
045 = 45 V

Axial DO-204AR

DIMENSIONS in millimeters (inches)



Schottky Axial > 4 A for DO-204AR



ITEM	SYMBOL	SPECIFICATIONS (mm)	SPECIFICATIONS (INCHES)
Inside tape spacing	B	55 ± 1.5	2.165 ± 0.059
Clean lead to clean lead eccentricity	D1-D2	1.4 maximum	0.055 maximum
Cumulative pitch 6 consecutive components	P	58.5 ~ 59.5	2.303 ~ 2.343
Lead extension	K	0.8 maximum	0.031 maximum
Component pitch	A	9.8 ± 1	0.386 ± 0.039
Lead bending	M	1.2 maximum	0.047 maximum
Exposed adhesive	S	0.8 maximum	0.031 maximum
Tape width	T	6.0 ± 0.4	0.236 ± 0.016
Lead sandwich	H	3.2 minimum	0.126 minimum
Standard pack quantity		1500 pieces	