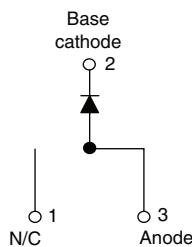


Schottky Rectifier, 19 A


D²PAK


FEATURES

- 125 °C T_J operation (V_R < 5 V)
- Optimized for OR-ing applications
- Ultra low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Designed and qualified for Q101 level

DESCRIPTION

The 19TQ015.. Schottky rectifier has been optimized for ultra low forward voltage drop specifically for the OR-ing of parallel power supplies. The proprietary barrier technology allows for reliable operation up to 125 °C junction temperature. Typical applications are in parallel switching power supplies, converters, reverse battery protection, and redundant power subsystems.

PRODUCT SUMMARY

I _{F(AV)}	19 A
V _R	15 V

MAJOR RATINGS AND CHARACTERISTICS

SYMBOL	CHARACTERISTICS	VALUES	UNITS
I _{F(AV)}	Rectangular waveform	19	A
V _{RRM}		15	V
I _{FSM}	t _p = 5 µs sine	700	A
V _F	19 Apk, T _J = 75 °C	0.32	V
T _J	Range	- 55 to 125	°C

VOLTAGE RATINGS

PARAMETER	SYMBOL	19TQ015S	UNITS
Maximum DC reverse voltage	V _R	15	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 = 80 °C, rectangular waveform	19	A
Maximum peak one cycle non-repetitive surge current See fig. 7	I _{FSM}	5 µs sine or 3 µs rect. pulse	700	A
		10 ms sine or 6 ms rect. pulse	330	
Non-repetitive avalanche energy	E _{AS}	T _J = 25 °C, I _{AS} = 1.50 A, L = 6 mH		6.75 mJ
Repetitive avalanche current	I _{AR}	Current decaying linearly to zero in 1 µs Frequency limited by T _J maximum V _A = 3 x V _R typical		1.50 A

ELECTRICAL SPECIFICATIONS

PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum forward voltage drop See fig. 1	V _{FM} ⁽¹⁾	19 A	T _J = 25 °C	0.36	V
		38 A		0.46	
		19 A	T _J = 75 °C	0.32	
		38 A		0.43	
Maximum reverse leakage current See fig. 2	I _{RM} ⁽¹⁾	T _J = 100 °C, V _R = 12 V		465	mA
		T _J = 100 °C, V _R = 5 V		285	
		T _J = 25 °C	V _R = Rated V _R	10.5	
		T _J = 100 °C		522	
Maximum junction capacitance	C _T	V _R = 5 V _{DC} (test signal range 100 kHz to 1 MHz) 25 °C		2000	pF
Typical series inductance	L _S	Measured lead to lead 5 mm from package body		8.0	nH
Maximum voltage rate of change	dV/dt	Rated V _R		10 000	V/μs

Note

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

THERMAL - MECHANICAL SPECIFICATIONS

PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum junction temperature range	T _J			- 55 to 125	°C
Maximum storage temperature range	T _{Stg}			- 55 to 150	
Maximum thermal resistance, junction to case	R _{thJC}	DC operation See fig. 4		1.50	°C/W
Typical thermal resistance, case to heatsink	R _{thCS}			0.50	
Approximate weight				2	g
				0.07	oz.
Mounting torque	minimum			6 (5)	kgf · cm (lbf · in)
	maximum			12 (10)	
Marking device		Case style D ² PAK		19TQ015S	

ORDERING INFORMATION TABLE

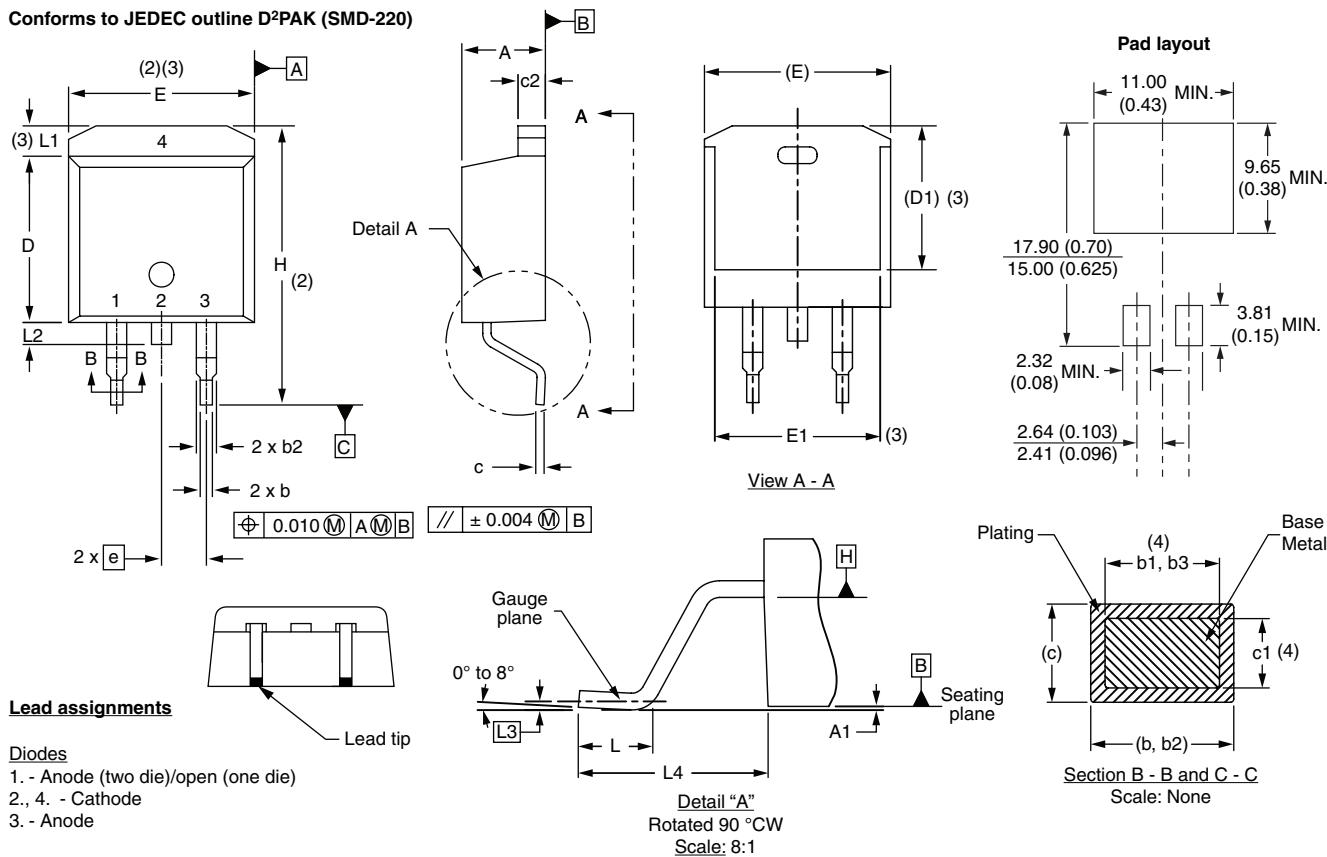
Device code	19	T	Q	015	S	TRL	-
	(1)	(2)	(3)	(4)	(5)	(6)	(7)

- [1]** - Current rating (19 A)
- [2]** - Circuit configuration:
T = TO-220
- [3]** - Schottky "Q" series
- [4]** - Voltage rating (015 = 15 V)
- [5]** - • S = D²PAK
- [6]** - • None = Tube (50 pieces)
• TRL = Tape and reel (left oriented)
• TRR = Tape and reel (right oriented)
- [7]** - • None = Standard production
• PbF = Lead (Pb)-free

D²PAK, TO-262

DIMENSIONS FOR D²PAK in millimeters and inches

Conforms to JEDEC outline D²PAK (SMD-220)



SYMBOL	MILLIMETERS		INCHES		NOTES		SYMBOL	MILLIMETERS		INCHES		NOTES
	MIN.	MAX.	MIN.	MAX.				MIN.	MAX.	MIN.	MAX.	
A	4.06	4.83	0.160	0.190			D1	6.86	-	0.270	-	3
A1	0.00	0.254	0.000	0.010			E	9.65	10.67	0.380	0.420	2, 3
b	0.51	0.99	0.020	0.039			E1	6.22	-	0.245	-	3
b1	0.51	0.89	0.020	0.035	4		e	2.54 BSC		0.100 BSC		
b2	1.14	1.78	0.045	0.070			H	14.61	15.88	0.575	0.625	
b3	1.14	1.73	0.045	0.068	4		L	1.78	2.79	0.070	0.110	
c	0.38	0.74	0.015	0.029			L1	-	1.65	-	0.066	3
c1	0.38	0.58	0.015	0.023	4		L2	1.27	1.78	0.050	0.070	
c2	1.14	1.65	0.045	0.065			L3	0.25 BSC		0.010 BSC		
D	8.51	9.65	0.335	0.380	2		L4	4.78	5.28	0.188	0.208	

Notes

- (1) Dimensioning and tolerancing per ASME Y14.5 M-1994
- (2) Dimension D and E do not include mold flash. Mold flash shall not exceed 0.127 mm (0.005") per side. These dimensions are measured at the outmost extremes of the plastic body
- (3) Thermal pad contour optional within dimension E, L1, D1 and E1
- (4) Dimension b1 and c1 apply to base metal only
- (5) Datum A and B to be determined at datum plane H
- (6) Controlling dimension: inch
- (7) Outline conforms to JEDEC outline TO-263AB

Outline Dimensions

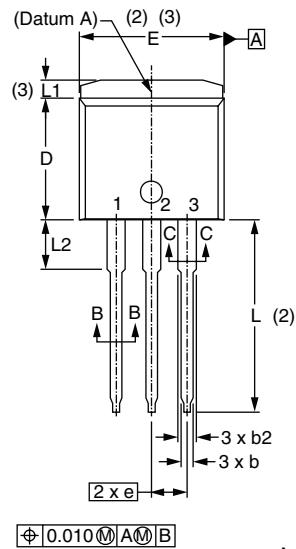
Vishay High Power Products

D²PAK, TO-262

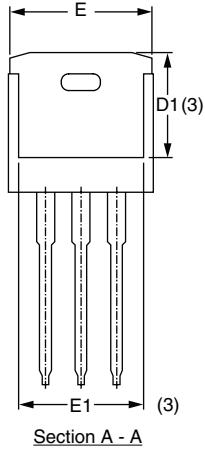
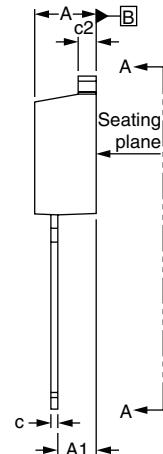


DIMENSIONS FOR TO-262 in millimeters and inches

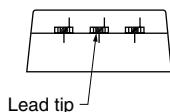
Modified JEDEC outline TO-262



$\pm 0.010 \text{ mm}$



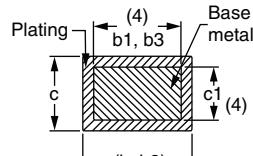
Section A - A



Lead assignments

Diodes

- 1. - Anode (two die)/open (one die)
- 2., 4. - Cathode
- 3. - Anode



Section B - B and C - C

Scale: None

SYMBOL	MILLIMETERS		INCHES		NOTES
	MIN.	MAX.	MIN.	MAX.	
A	4.06	4.83	0.160	0.190	
A1	2.03	3.02	0.080	0.119	
b	0.51	0.99	0.020	0.039	
b1	0.51	0.89	0.020	0.035	4
b2	1.14	1.78	0.045	0.070	
b3	1.14	1.73	0.045	0.068	4
c	0.38	0.74	0.015	0.029	
c1	0.38	0.58	0.015	0.023	4
c2	1.14	1.65	0.045	0.065	
D	8.51	9.65	0.335	0.380	2
D1	6.86	-	0.270	-	3
E	9.65	10.67	0.380	0.420	2, 3
E1	6.22	-	0.245	-	3
e	2.54 BSC		0.100 BSC		
L	13.46	14.10	0.530	0.555	
L1	-	1.65	-	0.065	3
L2	3.56	3.71	0.140	0.146	

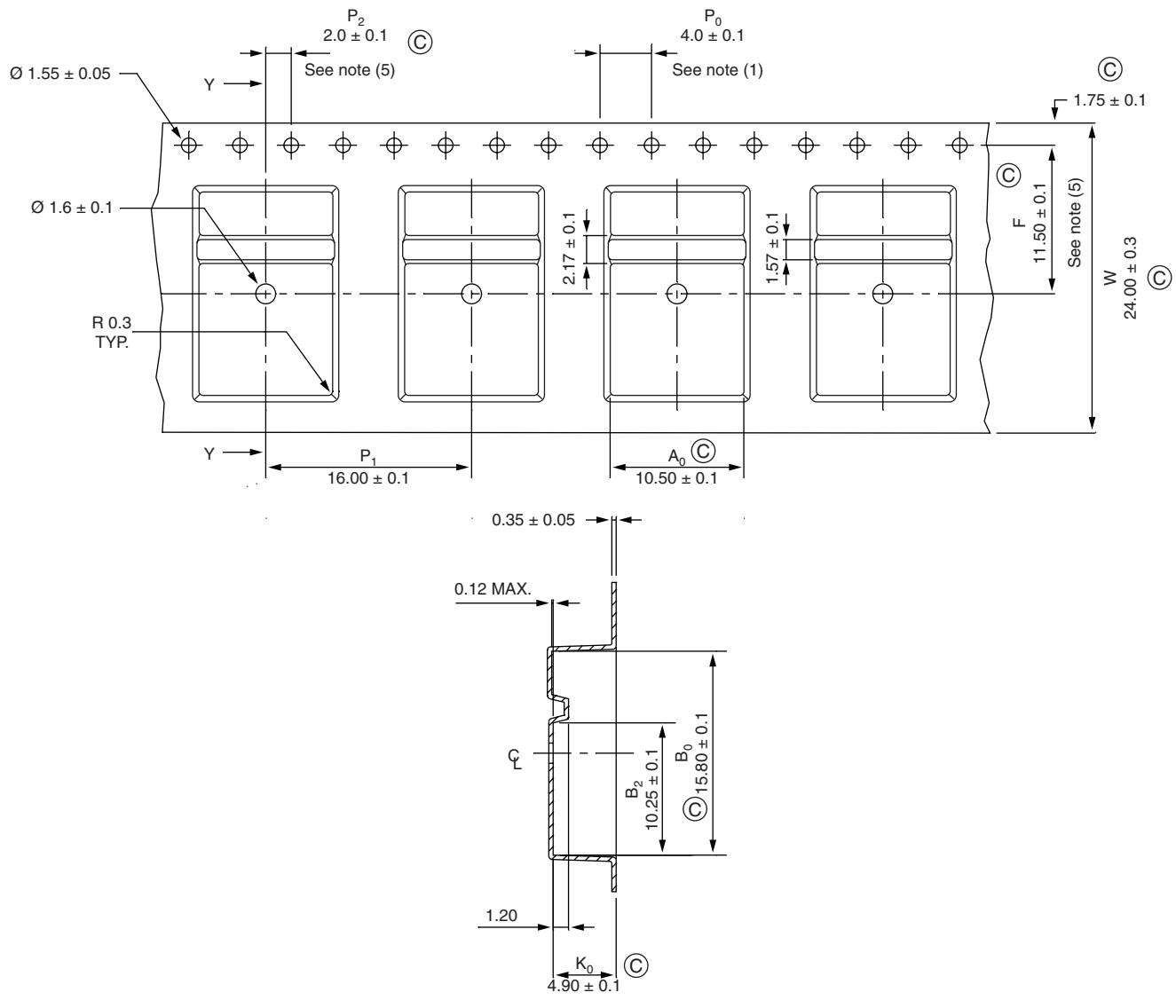
Notes

- (1) Dimensioning and tolerancing as per ASME Y14.5M-1994
- (2) Dimension D and E do not include mold flash. Mold flash shall not exceed 0.127 mm (0.005") per side. These dimensions are measured at the outmost extremes of the plastic body
- (3) Thermal pad contour optional within dimension E, L1, D1 and E1
- (4) Dimension b1 and c1 apply to base metal only
- (5) Controlling dimension: inches

- (6) Outline conform to JEDEC TO-262 except A1 (maximum), b (minimum) and D1 (minimum) where dimensions derived the actual package outline

D²PAK

TAPE AND REEL INFORMATION in millimeters (inches)



Section Y - Y

Notes

- (1) 10 sprocket hole pitch cumulative tolerance ± 0.02
- (2) Camber not to exceed 1 mm in 100 mm
- (3) Material: conductive black styrenic alloy
- (4) K_0 measured from a plane on the inside bottom of the pocket to the top surface of the carrier
- (5) Measured from centerline of sprocket hole to centerline of pocket
- (6) Vendor: (optional)
- (7) Must also meet requirements of EIA standard # EIA-481A taping of surface mount components for automatic placement
- (8) Surface resistivity of molded material must measure less or equal to $10^6 \Omega$ per square. Measured in accordance to procedure given in ASTM D-257 and ASTM D-991
- (9) Total length per reel must be 45 m
- (10) (C) critical