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With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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POWER DISCRETES
Description

Quick reference data

$$V_R = 50 - 600V$$

$$I_F = 4.5A$$

$$t_{rr} = 150 - 400nS$$

$$I_R = 1.0\mu A$$

Features

- ◆ Very low reverse recovery time
- ◆ Hermetically sealed non-cavity construction.
- ◆ Low switching losses
- ◆ Low forward voltage drop
- ◆ Soft, non-snap off, recovery characteristics
- ◆ Capable of withstanding temperature cycle conditions from -180°C to +130°C for space critical programs.

These products are qualified to MIL-PRF-19500/411. They can be supplied fully released as JAN, JANTX, JANTXV and JANS versions.

Absolute Maximum Ratings

Electrical specifications @ $T_A = 25^\circ C$ unless otherwise specified.

	Symbol	1N5415 3SF05	1N5416 3SF1	1N5417 3SF2	1N5418 3SF4	1N5419 3SF5	1N5420 3SF6	Units
Working Reverse Voltage	V_{RWM}	50	100	200	400	500	600	V
Repetitive Reverse Voltage	V_{RRM}	50	100	200	400	500	600	V
Average Forward Current @ 55°C in free air, lead length 0.375"	$I_{F(AV)}$	4.5						A
Repetitive Surge Current @ 55°C in free air, lead length 0.375"	I_{FRM}	25						A
Non-Repetitive Surge Current ($t_p = 8.3mS$ @ V_R & T_{JMAX}) ($t_p = 8.3mS$, @ V_R & $25^\circ C$)	I_{FSM}	80 150						A
Storage Temperature Range	T_{STG}	-65 to +175						°C

POWER DISCRETES

Electrical Specifications

	Symbol	1N5415 3SF05	1N5416 3SF1	1N5417 3SF2	1N5418 3SF4	1N5419 3SF5	1N5420 3SF6	Units
Average Forward Current max. for sine wave, $T_A = 55^\circ\text{C}$	$I_{F(AV)}$	3.0						A
Average Forward Current max. ($T_L = 55^\circ\text{C}$; $L = 3/8"$) for sine wave	$I_{F(AV)}$	4.4						A
for square wave	$I_{F(AV)}$	4.5						A
Pt for fusing ($t = 8.3\text{mS}$) max	Pt	90						A^2S
Forward Voltage Drop max. @ $I_F = 3.0\text{A}$, $T_j = 25^\circ\text{C}$	V_F	1.1						V
Reverse Current max. @ V_{RWM} , $T_j = 25^\circ\text{C}$	I_R	1.0						μA
@ V_{RWM} , $T_j = 100^\circ\text{C}$	I_R	20						μA
Reverse Recovery Time max. 0.5A I_F to 1.0A I_{RM} recovers to 0.25A $I_{RM(REC)}$	trr	150	150	150	150	250	400	nS
Junction Capacitance typ. @ $V_R = 4\text{V}$, $f = 1\text{MHz}$	Cj	550	430	250	165	140	120	pF

Thermal Characteristics

	Symbol	1N5415 3SF05	1N5416 3SF1	1N5417 3SF2	1N5418 3SF4	1N5419 3SF5	1N5420 3SF6	Units
Thermal Resistance-Junction to Lead Lead length = 0.375"	$R_{\theta JL}$	20						$^\circ\text{C}/\text{W}$
Lead length = 0.0"	$R_{\theta JL}$	4						$^\circ\text{C}/\text{W}$
Thermal Resistance-Junction to Ambient on 0.06" thick pcb. 1 oz. copper	$R_{\theta JA}$	75						$^\circ\text{C}/\text{W}$

Application Note

These diodes are capable of withstanding 20 cycles of Temperature Cycling from -180°C to $+130^\circ\text{C}$ for for Space Critical Programs. Semtech is also able to offer this test condition as a 100% Screening Option. A full Summary Data Report is available on request. Please consult the factory for details.

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Typical Characteristics

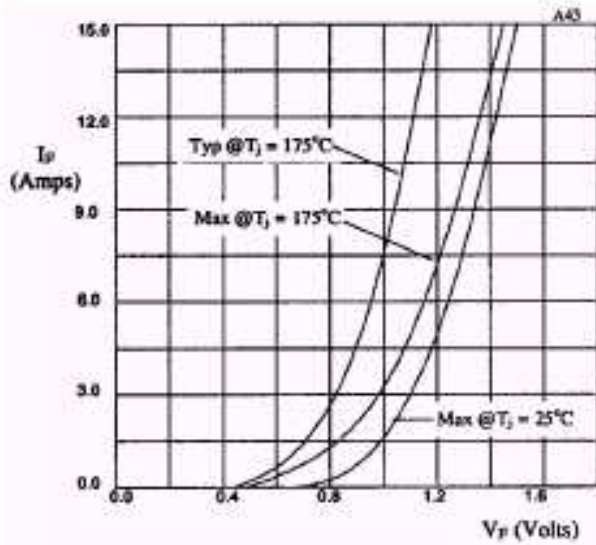


Fig 1. Forward voltage drop as a function of forward current.

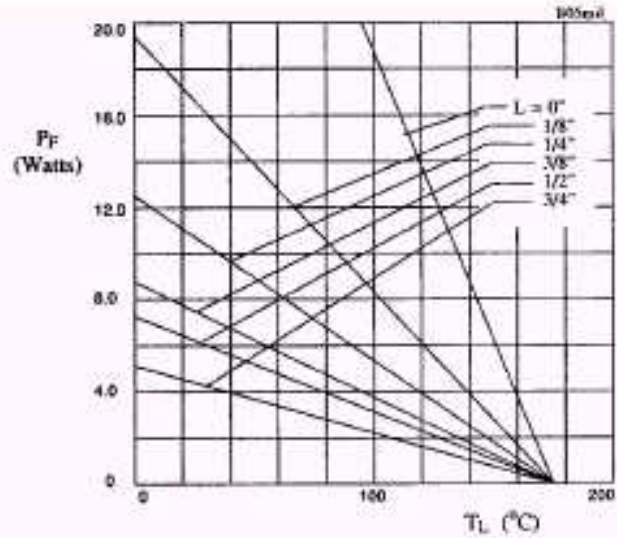


Fig 2. Maximum power versus lead temperature.

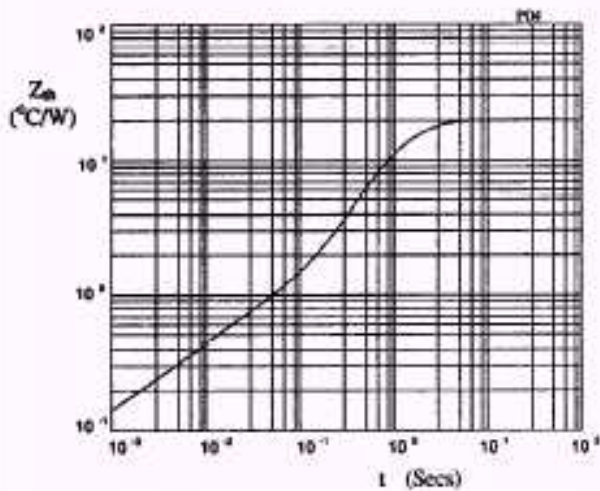


Fig 3. Transient thermal impedance characteristic.

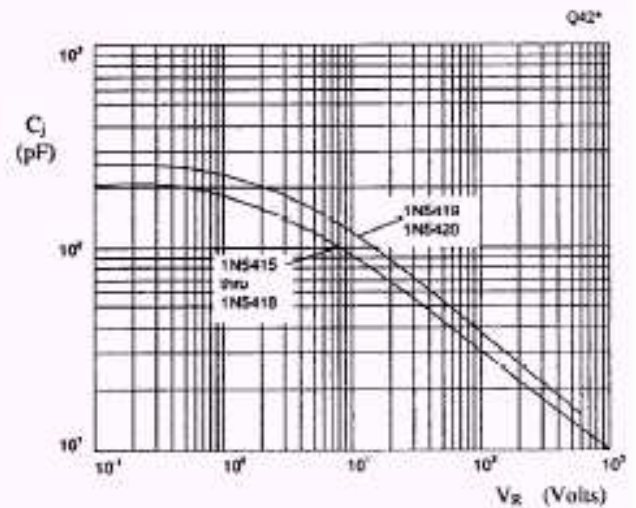


Fig 4. Typical junction capacitance as a function of reverse voltage.

POWER DISCRETES
Typical Characteristics

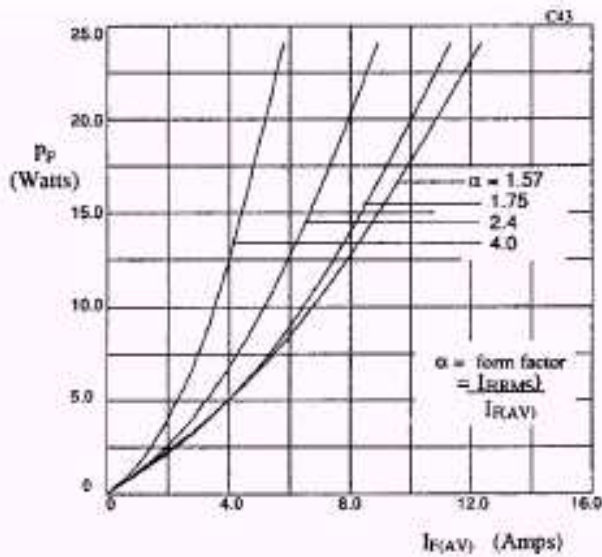


Fig 5. Forward power dissipation as a function of forward current, for sinusoidal operation.

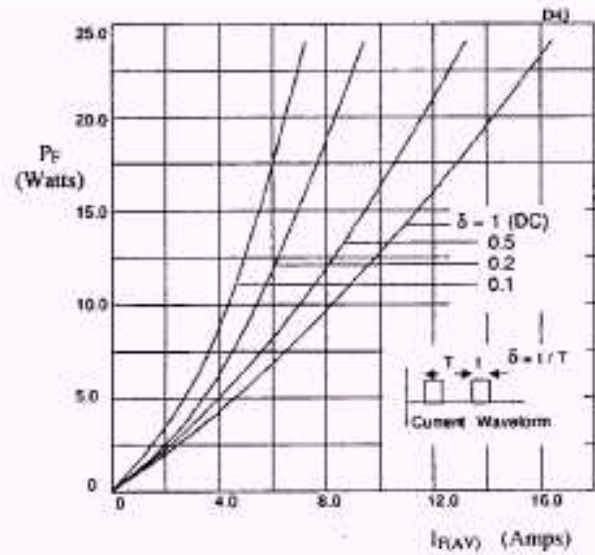


Fig 6. Forward power dissipation as a function of forward current, for square wave operation.

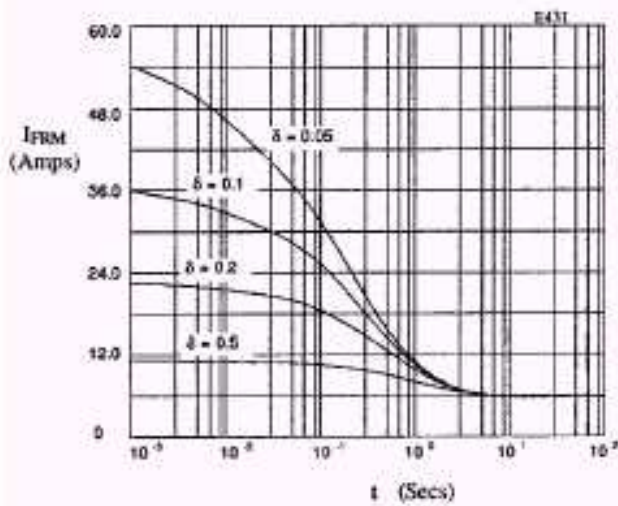


Fig 7. Typical repetitive forward current as a function of pulse width at 55°C; $R_{\theta JL} = 20\text{ }^{\circ}\text{C/W}$; V_{RWM} during $1 - \delta$.

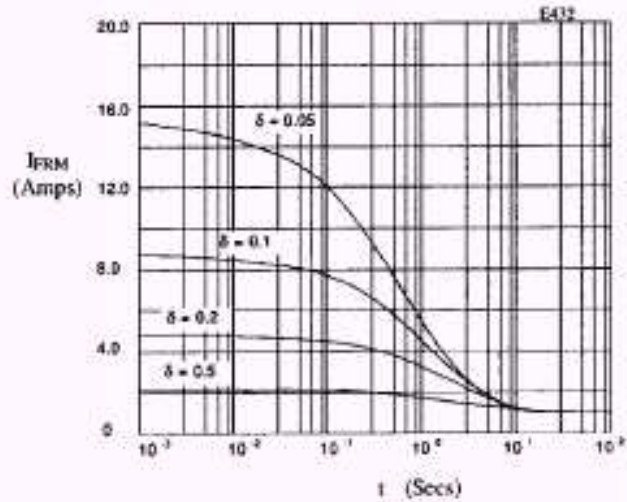


Fig 8. Typical repetitive forward current as a function of pulse width at 100°C; $R_{\theta JL} = 80\text{ }^{\circ}\text{C/W}$; V_{RWM} during $1 - \delta$.

POWER DISCRETES

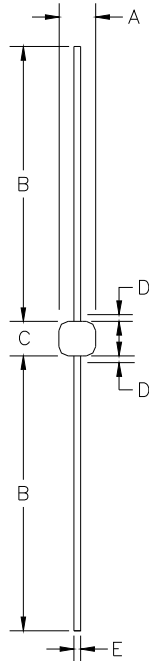
Ordering Information

Part Number	Description
1N5415	Axial leaded hermetically sealed ⁽¹⁾
1N5416	
1N5417	
1N5418	
1N5419	
1N5420	
3SF05	
3SF1	
3SF2	
3SF4	
3SF5	
3SF6	

Note:

(1) Available in bulk and tape and reel packaging. Please consult factory for quantities.

Outline Drawing



G4

DIM ^N	Dimensions				Note
	Inches		Millimeters		
	MIN	MAX	MIN	MAX	
A	0.135	0.18	3.43	4.57	-
B	0.9	1.3	22.9	33.0	-
C	0.13	0.17	3.3	4.32	-
D	-	0.05	-	1.27	1
E	0.036	0.042	0.91	1.07	-

Note:

(1) Lead diameter uncontrolled over this region.

Weight = 0.04oz

Contact Information

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