New Jersey Semi-Conductor Products, Inc.

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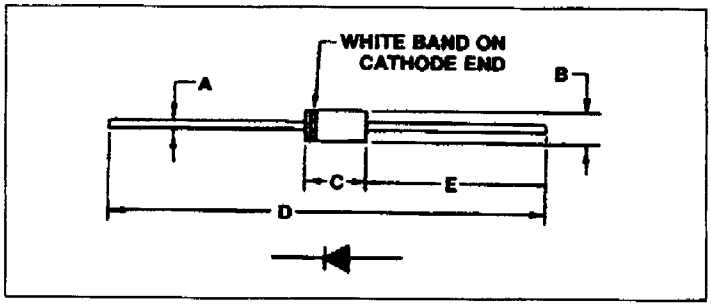
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VSK Series

5 Amp Schottky Rectifiers 150°C MAX T_J

20 Volt, 30 Volt and 40 Volt V_{RRM}
.450 Volt V_F at I_F = 5.0 Amp
Very Fast Switching Speed
Minimum Sized, Low Cost Epoxy Encapsulation

LTR.	INCHES	MILLIMETERS
A	.048–.052	1,22–1,32 Dia.
B	.190–.225	4,83–5,72
C	.36–.37	9,14–9,40
D	2.6–2.8	66,0–71,1
E	1.137–1.237	28,33–31,42



MAXIMUM RATINGS (At T_A = 25°C unless otherwise noted)

RATINGS	SYMBOL	VSK520	VSK530	VSK540	UNITS
DC Blocking Voltage Working Peak Reverse Voltage Peak Repetitive Reverse Voltage	V_{RM} V_{RWM} V_{RRM}	20	30	40	Volts
RMS Reverse Voltage	$V_{R(RMS)}$	14	21	28	Volts
Average Rectified Forward Current (Fig. 5 & 6)	I_O	5.0			Amps
Ambient Temp. @ Rated V_{RM}, $R_{\theta JA} \leq 16°$ C/W	T_A	70	65	60	°C
Peak Surge Current (non-rep), 300μs Pulse Width (Fig. 4)	I_{FSM}	500			Amps
Peak Surge Current (non-rep), ½ cycle, 60Hz (Fig.4)	I_{FSM}	250			Amps
Operating Junction Temperature	T_J	−65 to +150*			°C
Storage Temperature	T_{STG}	−65 to +150			°C

*$V_{RM} \leq 0.1\ V_{RM}$ Max, $R_{\theta JA} \leq 12°C/W$

ELECTRICAL CHARACTERISTICS (At T_A = 25°C unless otherwise noted)

CHARACTERISTICS		SYMBOL	VSK520	VSK530	VSK540	UNITS
Maximum Instantaneous Forward Voltage Drop (1) See Fig. 2 for Typical v_F	I_F = 3.0 Amps I_F = 5.0 Amps I_F = 15.0 Amps	V_F	.400 .450 .625			Volts
Maximum Instantaneous Reverse Current at Rated V_{RM} See Fig. 1 for Typical I_R	T_J = 25°C T_J = 100°C	I_R	10 75			mA

NJ Semi-Conductors reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However, NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.

Quality Semi-Conductors

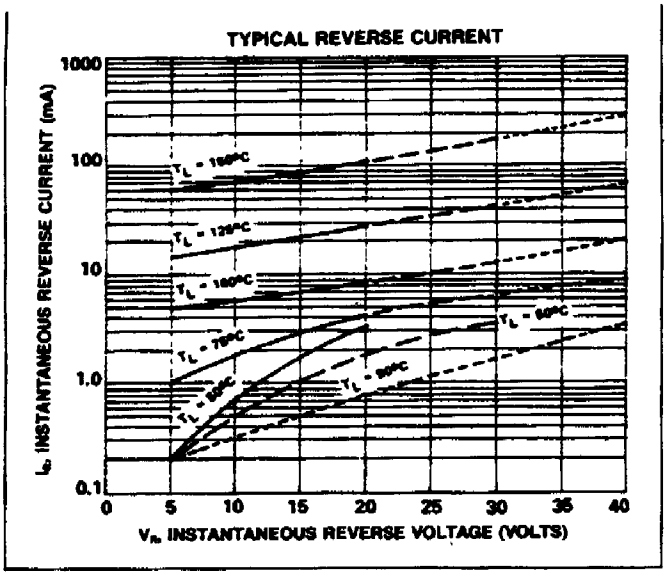


FIGURE 1

VSL520

VSK530

VSK540

PULSE WIDTH = 300 μsec

T_L = LEAD TEMP. MEASURED .03" FROM RECTIFIER BODY WITH 40 GAUGE THERMOCOUPLE

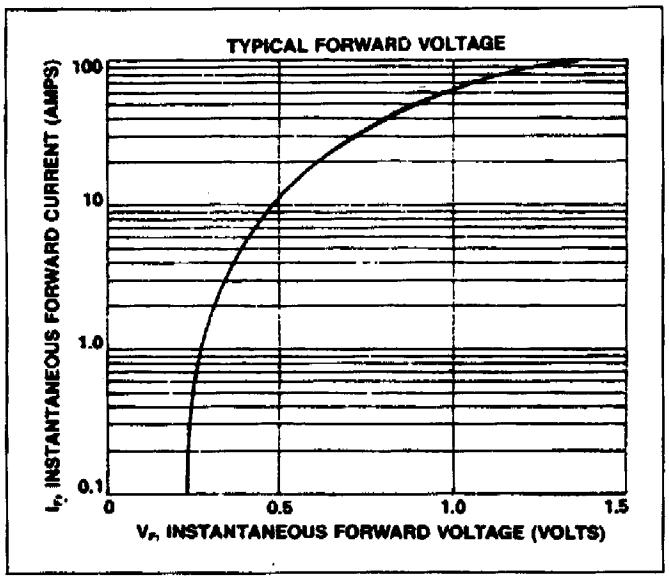


FIGURE 2

PULSE WIDTH = 300 μsec

T_A = 25°C

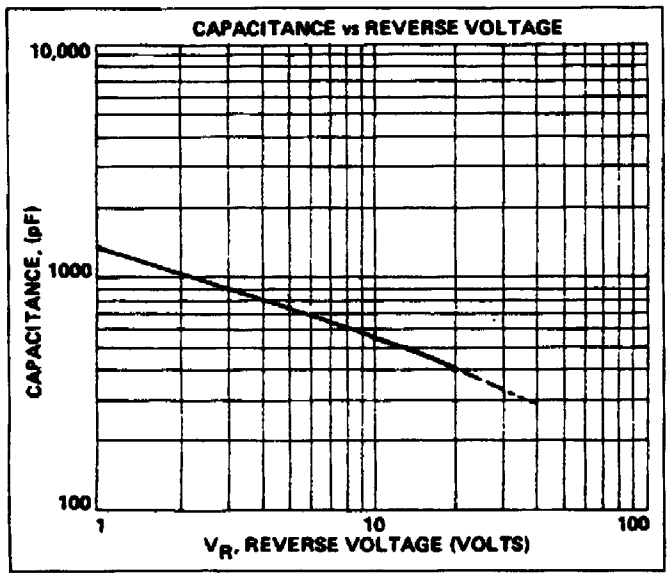


FIGURE 3

VSK520

VSK530

VSK540

T_A = 25°C
TEST FREQ = 100 kHz

The current flow in a Schottky barrier rectifier is due to majority carrier conduction and is not affected by reverse recovery transients due to stored charge and minority carrier injection as in conventional PN diodes.

The Schottky barrier rectifier may be considered for purposes of circuit analysis, as an ideal diode in parallel with a variable capacitance equal in value to the junction capacitance. See Figure 3.