

DIGITRON SEMICONDUCTORS

1N6638, 1N6642, 1N6643 SWITCHING RECTIFIERS

MAXIMUM RATINGS @ 25°C

Part number	Reverse voltage V_R (V)	Working peak reverse voltage V_{RWM} (V)	Operating current I_O (Note 1) (mA)	Peak forward surge current I_{FSM} (Note 2) (A)	$R_{\theta JL}$ $L = .375''$ (°C/W)	T_{OP} T_{stg} (°C)
1N6638	150	125	300	2.5	160	-65 to +175
1N6642	100	75	300	2.5	160	
1N6643	75	50	300	2.5	160	

Note 1: At maximum end cap temperature = 110°C for US suffix types.

Derate at 4.6 mA/°C above end cap temperature = 110°C. Derate axial types at 3.0 mA/°C above ambient temperature = 25°C.

Note 2: Test pulse = 8.3ms, half sine wave.

ELECTRICAL CHARACTERISTICS @ 25°C

Part number	Maximum forward voltage $V_F @ I_F$		Maximum DC reverse current I_R			
			$V_R = 20V$	$V_R = V_{RWM}$	$V_R = 20V$ $T_A = 150^\circ C$	$V_R = V_{RWM}$ $T_A = 150^\circ C$
	$V @ mA$		nA	μA	μA	μA
1N6638	0.8V @ 10mA	1.1V @ 200mA	25	0.5	40	100
1N6642	1.0V @ 10mA	1.2V @ 100mA	25	0.5	50	100
1N6643	1.0V @ 10mA	1.2V @ 100mA	50	0.5	75	160

ELECTRICAL CHARACTERISTICS @ 25°C

Part number	Reverse recovery time t_{rr} Note 1	Maximum forward recovery voltage and time $I_F = 50mA, t_r = 1ns$		Maximum junction capacitance $f = 1MHz$ $V_{sig} = 50mV (p-p)$	
		V_{fr}	t_{fr}	$V_R = 0V$	$V_R = 1.5V$
	ns	V	ns	pF	pF
1N6638	4.5	5.0	20	2.0	1.4
1N6642	5.0	5.0	20	5.0	2.8
1N6643	6.0	5.0	20	5.0	2.8

Note 1: Reverse Recovery Time Test Conditions:

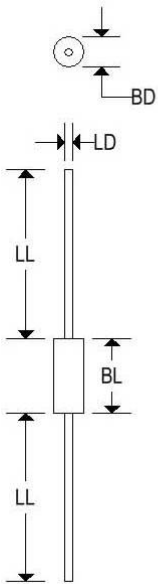
$I_F = I_R = 10mA_{dc}$, $i_{R(REC)} = 1.0mA_{dc}$, $C = 3pF$, $R_L = 100ohms$

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MECHANICAL CHARACTERISTICS

CASE:	DO-35
MARKING:	Bodied Painted, Alpha Numeric
POLARITY:	Cathode Band



	DO-35			
	Inches		Millimeters	
	Min	Max	Min	Max
BD	0.055	0.090	1.400	2.290
BL	0.120	0.200	3.050	5.080
LD	0.018	0.022	0.460	0.560
LL	1.000	1.500	25.400	38.100

Available Non-RoHS (standard) or RoHS compliant (add PBF suffix).
 Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number.

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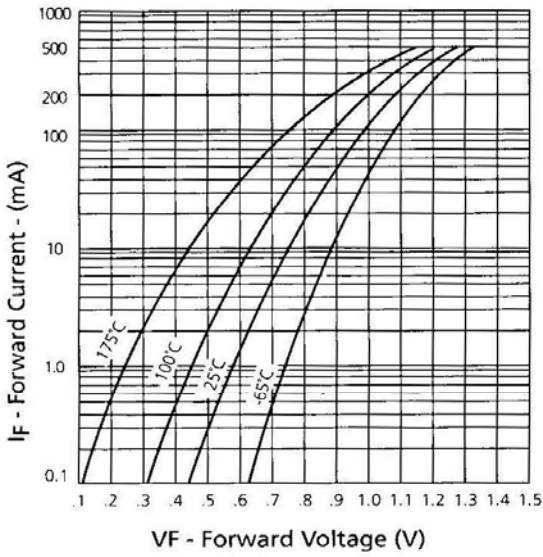


FIGURE 2
1N6638 & US
Typical Forward Current
vs Forward Voltage

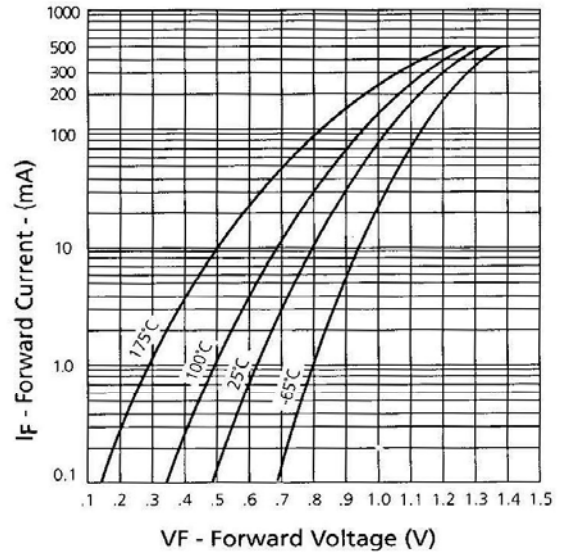


FIGURE 3
1N6642, 1N6643, & US
Typical Forward Current
vs Forward Voltage

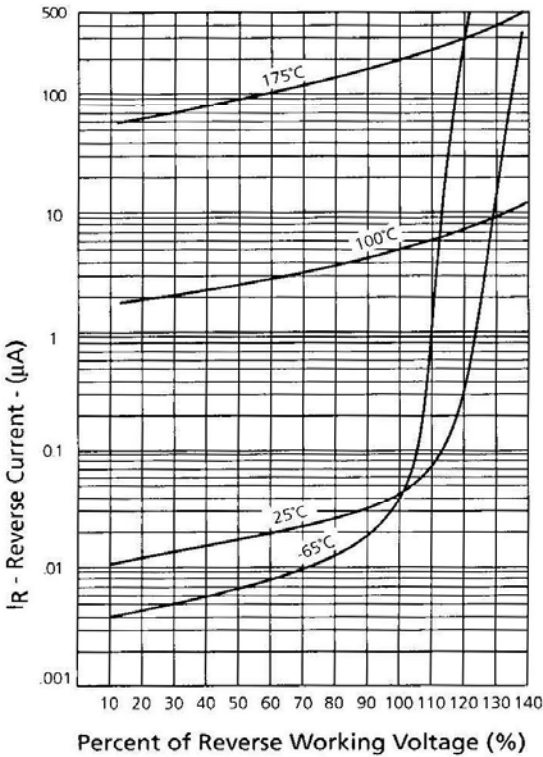


FIGURE 4
1N6638, 1N6642, & US
Typical Reverse Current
vs Reverse Voltage

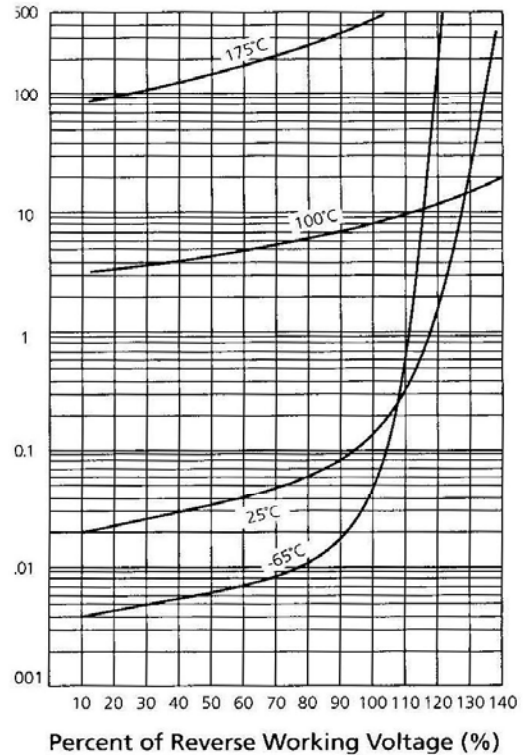


FIGURE 5
1N6643 & US
Typical Reverse Current
vs Reverse Voltage