MOSPEC

Switchmode
Dual Ultrafast Power Rectifiers

Designed for use in switching power supplies. inverters and as free wheeling diodes. These state-of-the-art devices have the following
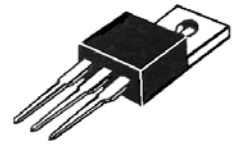
Features
* High Surge Capacity
* Low Power Loss, High efficiency
* 150℃ Operating Junction Temperature
* Low Stored Charge Majority Carrier Conduction
* Low Forward Voltage, High Current Capability
* High-Switching Speed Recovery Time
* Plastic Material used Carries Underwriters Laboratory Flammability Classification 94V-O
* *Pb free*
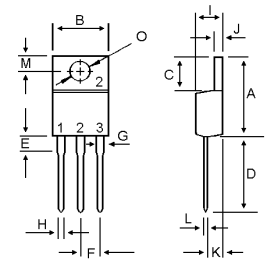* *In compliance with EU RoHs directives*

ULTRA FAST RECTIFIERS

16 AMPERES 200 VOLTS

TO-220AB

DIM	MILLIMETERS	
	MIN	MAX
A	14.68	16.00
B	9.78	10.42
C	5.02	6.60
D	13.00	14.62
E	3.10	4.19
F	2.41	2.67
G	1.10	1.67
H	0.69	1.01
I	4.22	4.98
J	1.14	1.40
K	2.20	3.30
L	0.28	0.61
M	2.48	3.00
O	3.50	4.00

MAXIMUM RATINGS

Characteristic	Symbol	U16C20A	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	200	V
RMS Reverse Voltage	$V_{R(RMS)}$	140	V
Average Rectifier Forward Current (per diode) Total Device (Rated V_R), T_C=125℃	$I_{F(AV)}$	8 16	A
Peak Repetitive Forward Current (Rate V_R, Square Wave, 20kHz)	I_{FM}	16	A
Non-Repetitive Peak Surge Current (Surge applied at rate load conditions half-ware, single phase, 60Hz)	I_{FSM}	150	A
Operating and Storage Junction Temperature Range	T_J , T_{stg}	-65 to +150	℃

ELECTRICAL CHARACTERISTICS

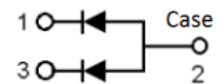| Characteristic	Symbol	Min.	Typ.	Max.	Unit
Maximum Instantaneous Forward Voltage (I_F =8 Amp T_C = 25℃) (I_F =8 Amp T_C = 125℃)	V_F	--- ---	0.96 0.85	1.00 ---	V
Maximum Instantaneous Reverse Current (Rated DC Voltage, T_C = 25℃) (Rated DC Voltage, T_C = 125℃)	I_R	--- ---	0.01 2	10 ---	uA
Reverse Recovery Time (I_F = 0.5 A, I_R =1.0 , I_{rr} =0.25 A)	T_{rr}	---	28	35	ns
Typical Junction Capacitance (Reverse Voltage of 4 volts & f=1 MHz)	C_P		163		ₚF

FIG-1 TYPICAL FORWARD CHARACTERISTICS

INSTANTANEOUS FORWARD CURRENT (Amp.)

$T_J=125^oC$

$T_J=75^oC$

$T_J=25^oC$

FORWARD VOLTAGE (V)

FIG-2 TYPICAL REVERSE CHARACTERISTICS

INSTANTANEOUS REVERSE CURRENT (uA)

$T_J=125^oC$

$T_J=75^oC$

$T_J=25^oC$

PERCENT OF RATED PEAK REVERSE VOLTAGE (%)

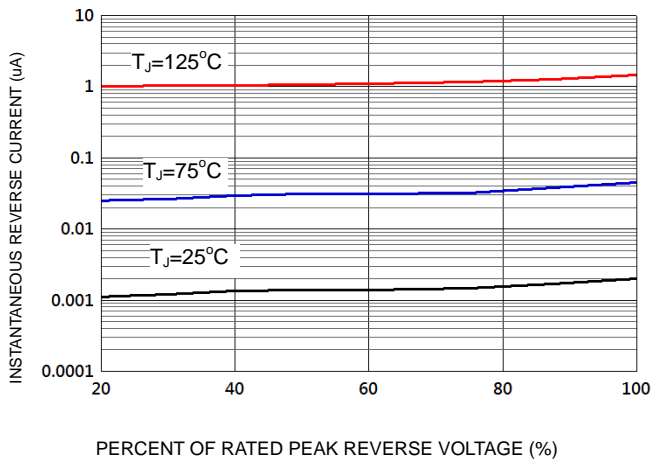### FIG-3 FORWARD CURRENT DERATING CURVE

AVERAGE FORWARD RECTIFIED CURRENT (Amp.)

LEAD TEMPERATURE (℃)

FIG-4 TYPICAL JUNCTION CAPACITANCE

JUNCTION CAPACITANCE (pF)

f = 1 M H z
T a = 2 5 ^{o}C

REVERSE VOLTAGE (V)

FIG-5 PEAK FORWARD SURGE CURRENT

PEAK FORWARD SURGE CURRENT (Amp.)

NUMBER OF CYCLES AT 60 Hz

50 Ω NI　　　10 Ω NI

Device Under Test

(+)

50 Vdc Approx

(--)

1Ω NI

Oscilloscope (Note 1)

Pulse Generator (Note 2)

(--)

(+)
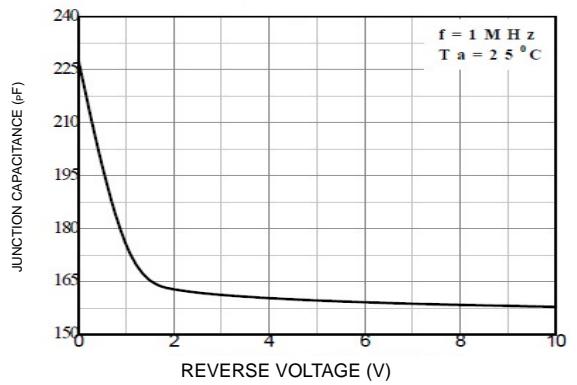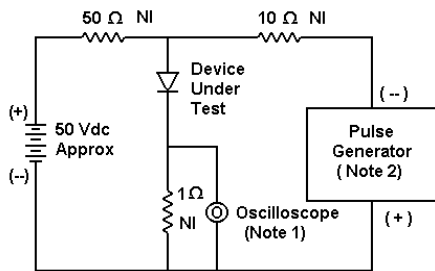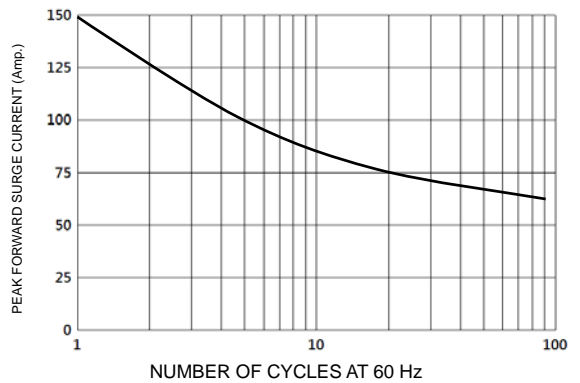
Notes:
1. Rise Time = 7 ns max. Input Impedance =1 M Ω , 22 pF
2. Rise Time = 10 ns max. Input Impedance = 50 Ω

t_{rr}

+0.5A

0

-0.25A

-1.0A
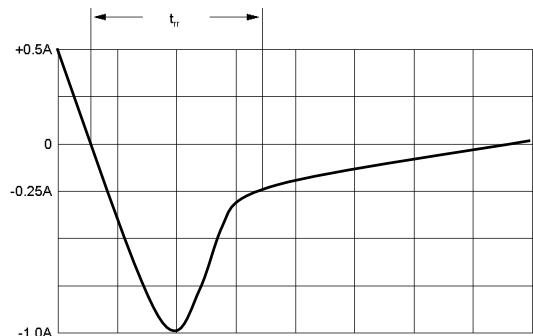
Set time base for 20/50 ns/cm

FIG-6 Reverse Recovery Time Characteristic and Test Circuit Diagram

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