RoHS Available

HIGH EFFICIENCY RECTIFIERS
30 A Center-Tap

High-Reliability screening available

DESCRIPTION

This series of UES2601 through UES2603 combines two high efficiency devices into one package, simplifying installation, reducing heat sink requirements and the need to purchase matched components. Microsemi also offers numerous other products to meet higher and lower power voltage regulation applications.

TO-204AA (TO-3) Package

Important: For the latest information, visit our website http://www.microsemi.com.

FEATURES

- Very low forward voltage.
- Very fast switching speed.
- High surge capability.
- Low thermal resistance.
- Positive and negative polarities available.
- RoHS compliant versions available.

APPLICATIONS / BENEFITS

- Catch diode.
- High power and high current applications.
- Convenient package.
- Mechanically rugged.

MAXIMUM RATINGS

Parameters/Test Conditions		Symbol	Value	Unit
Junction and Storage Temperature		T_J and T_{STG}	-55 to +175	^oC
Thermal Resistance Junction-to-Case		$R_{\Theta JC}$	1	$^oC/W$
Repetitive Peak Inverse Voltage	UES2601(HR2)	V_{RRM}	50	V
	UES2602(HR2)		100	
	UES2603(HR2)		150	
Maximum Average DC Output Current @ T_C = 100 ^oC		I_O	30	A
Non-Repetitive Sinusoidal Surge Current (8.3 ms)		I_{FSM}	400	A

MSC – Lawrence
6 Lake Street,
Lawrence, MA 01841
Tel: 1-800-446-1158 or
(978) 620-2600
Fax: (978) 689-0803

MSC – Ireland
Gort Road Business Park,
Ennis, Co. Clare, Ireland
Tel: +353 (0) 65 6840044
Fax: +353 (0) 65 6822298

Website:
www.microsemi.com

MECHANICAL and PACKAGING

- CASE: TO-3 metal can.
- TERMINALS: Solder dipped (Sn63/Pb37) over nickel plated alloy 52. RoHS compliant matte-tin plating is also available.
- MARKING: MSC part number, date code, polarity symbol.
- POLARITY: STANDARD (Positive Output): Anode 1 is pin #1, Anode 2 is pin #2, Common Cathode is the case.
- WEIGHT: Approximately 12.7 grams.
- See Package Dimensions on last page.

OPTIONAL HIGH RELIABILITY (HR2) SCREENING

The following tests are performed on 100% of the devices specified UES2601HR2, 2HR2, 3HR2.

SCREEN	MIL-STD-750 METHOD	CONDITIONS
1. High Temperature	1032	24 Hours @ T_A = 150 °C
2. Thermal Shock (Temperature Cycling)	1051	G, 20 cycles, -55 °C to +150 °C
3. Hermetic Seal a. Fine b. Gross	1071	 H, Helium C, Liquid
4. Thermal Impedance	3101	n/a
5. Interim Electrical Parameters	GO/NO GO	V_F and I_R @ 25 °C
6. High Temperature Reverse Bias (HTRB)	1038	A, 48 Hours, T_C = 125°C, V_R = 80% of rating
7. Final Electrical Parameters	GO/NO GO	V_F and I_R @ 25 °C

PART NOMENCLATURE

UES 2601 R HR2 (e3)

High Efficiency Diode

Series number
See Electrical Characteristics table

Polarity
R = Reverse: Stud to Cathode
Blank = Cathode to Stud

RoHS Compliance
e3 = RoHS compliant
Blank = non-RoHS compliant

Screening
HR2 = High-Reliability
blank = Standard reliability

SYMBOLS & DEFINITIONS	
Symbol	**Definition**
I_F	Forward Current: The forward current dc value, no alternating component.
I_{FM}	Maximum Peak Forward Current: The peak total value of the forward current dc value.
I_{FSM}	Maximum Forward Surge Current: The forward current, surge peak or rated forward surge current.
I_O	Average Rectified Output Current: The Output Current averaged over a full cycle with a 50 Hz or 60 Hz sine-wave input and a 180 degree conduction angle.
I_R	Reverse Current: The maximum reverse (leakage) current that will flow at the specified voltage and temperature.
t_{rr}	Reverse Recovery Time: The time interval between the instant the current passes through zero when changing from the forward direction to the reverse direction and a specified decay point after a peak reverse current occurs.
V_F	Maximum Forward Voltage: The maximum forward voltage the device will exhibit at a specified current.
V_R	Reverse Voltage: The reverse voltage dc value, no alternating component.
V_{RRM}	Repetitive Peak Reverse Voltage: The peak reverse voltage including all repetitive transient voltages but excluding all non-repetitive transient voltages.

ELECTRICAL CHARACTERISTICS

Type	**PIV**	**Maximum Forward Voltage – V_F @**		**Maximum Reverse Current - I_R @**		**Maximum Reverse Recovery Time - t_{rr} (Note 1)**
		T_C = 25 °C	**T_C = 125 °C**	**T_C = 25 °C**	**T_C = 125 °C**	
UES2601/2601HR2 UES2602/2602HR2 UES2603/2603HR2	50 V 100 V 150 V	.930 V @ 15 A T_P = 300 µs	.825 V @ 15 A T_P = 300 µs	20 µA	4 mA	35 ns

NOTE: 1. Measured in circuit I_F = 0.5 A, I_R = 1 A, I_{REC} = 0.25 A.

GRAPHS

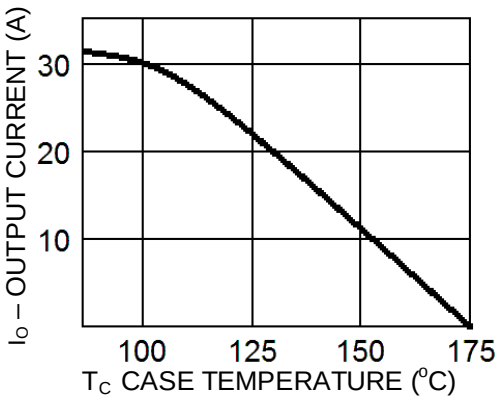


FIGURE 1
Output Current vs. Case Temperature

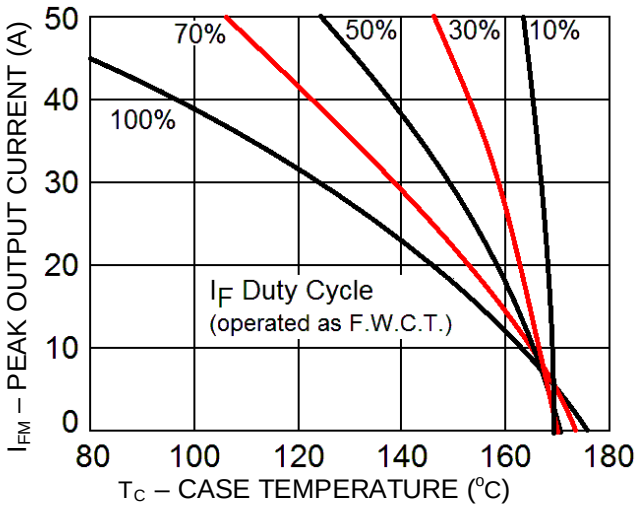


FIGURE 2
Peak Output Current vs. Case Temperature

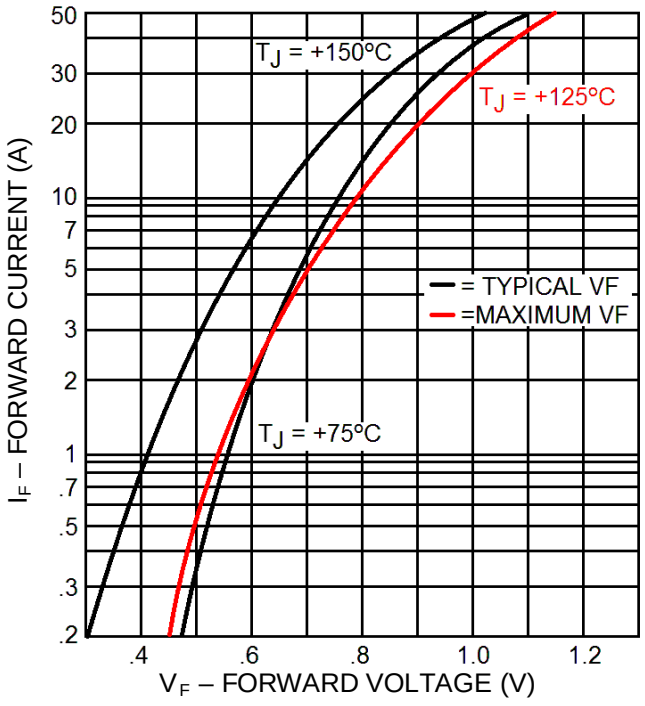


FIGURE 3
Forward Current vs. Forward Voltage

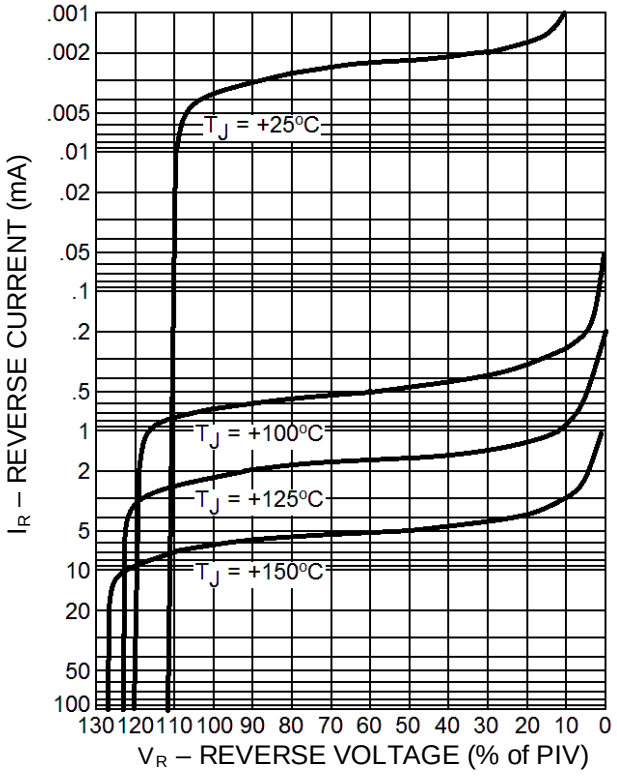


FIGURE 4
Typical Reverse Current vs. Reverse Voltage

GRAPHS

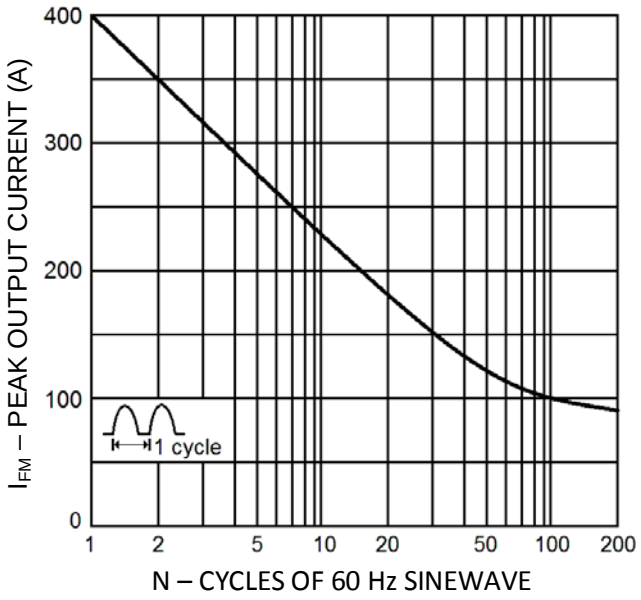


FIGURE 5
Maximum Forward Surge vs. Number of Cycles

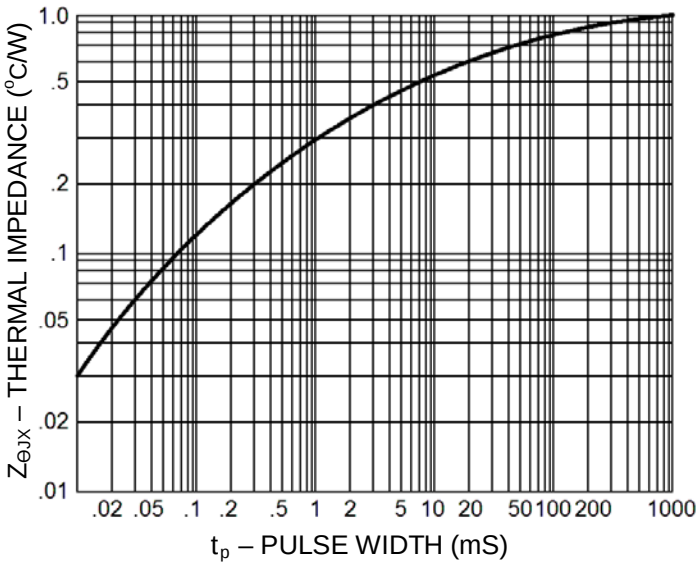


FIGURE 6
Thermal Impedance vs. Pulse Width

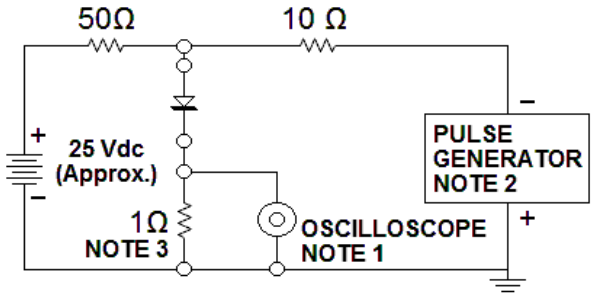
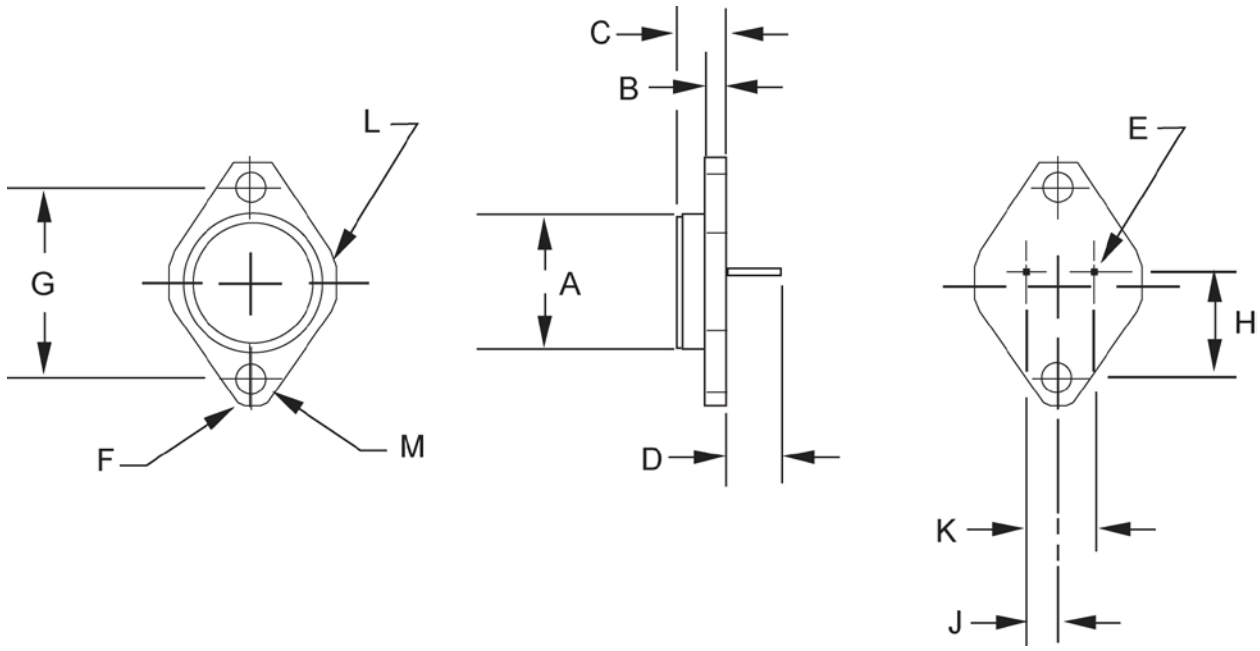


FIGURE 7
Reverse-Recovery Circuit

NOTES:
1. Oscilloscope: Rise time ≤ 3 ns; input impedance = 50 Ω.
2. Pulse Generator: Rise time ≤ 8 ns; source impedance 10 Ω.
3. Current viewing resistor, non-inductive, coaxial recommended.

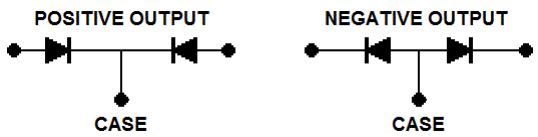
PACKAGE DIMENSIONS



NOTE:
Standard polarity is positive output.
For reverse polarity (negative output) add suffix “R”, ie. UES2601R.

DIM	INCHES	MILLIMETERS
A	.875 MAX.	22.23 MAX.
B	.135 MAX.	3.43 MAX.
C	.250-.450	6.35-11.43
D	.312 MIN.	7.92 MIN.
E	.038-.043 DIA.	0.97-1.09 DIA
F	.188 MAX. RAD.	4.78 MAX. RAD.
G	1.177-1.197	29.90-30.40
H	.655-.675	16.64-17.15
J	.205-.225	5.21-5.72
K	.420-.440	10.67-11.18
L	.525 MAX. RAD.	13.34 MAX. RAD.
M	.151-.161 DIA.	3.84-4.09 DIA.

SCHEMATIC



Cathode to Case
(Standard)

Anode to Case
(Reverse)

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Microsemi:

UES2601 UES2602 UES2602R UES2601R UES2603R