

# 8Amp. Superfast High Voltage Rectifiers

## MSR0860E2

$I_{F(AV)}$	8A
$V_{RRM}$	600V
$I_{FSM}$	100A
trr	30ns
$T_j$	175°C
$V_{F(Max)}$	2.5V

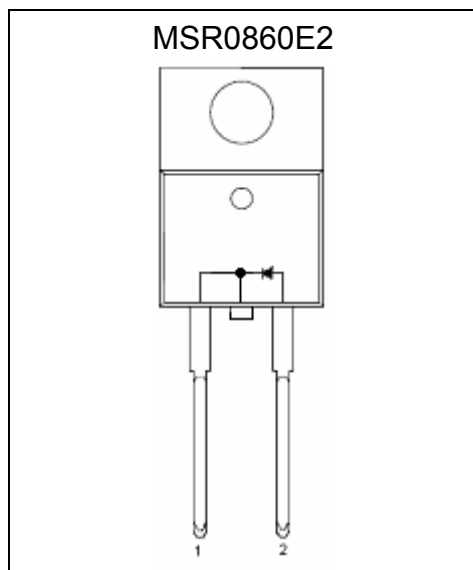
### Features

- 175°C operating junction temperature
- Low leakage current
- Superfast recovery time
- Low switching loss, high efficiency
- High forward surge capability
- High temperature soldering guaranteed : 260°C/40s, 0.25”(6.35mm) from case
- Pb-free lead plating package

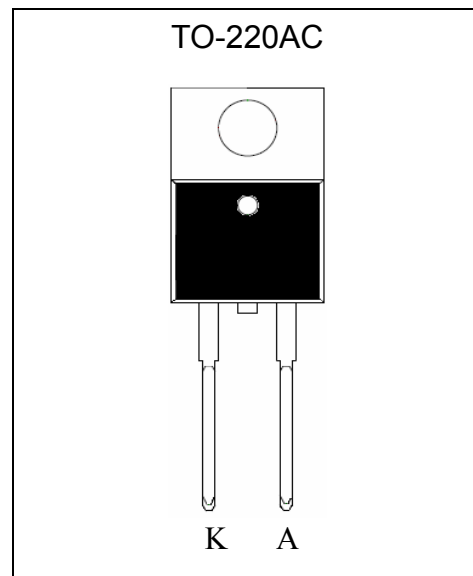
### Mechanical Data

- Case: TO-220AC molded plastic
- Mounting Position: Any
- Weight: 1.85 grams, 0.065 ounce approximately
- Terminals: Pure tin plated, solderable per J-STD-002 and JESD22-B102
- Epoxy: UL 94V-0 rate flame retardant
- Polarity : As marked.

### Equivalent Circuit



### Outline



**Maximum Ratings and Electrical Characteristics**

(Rating at 25°C ambient temperature unless otherwise specified. Single phase, half wave, 60Hz, resistive or inductive load. For capacitive load, derate current by 20%.)

Parameter	Symbol	Min.	Typ.	Max.	Units
Maximum Recurrent peak reverse voltage	$V_{RRM}$			600	V
Maximum RMS voltage	$V_{RMS}$			420	V
Maximum DC blocking voltage	$V_{DC}$			600	V
Maximum instantaneous forward voltage at $I_F=8A$	$V_F$	$T_C=25^\circ C$	1.65	2.5	V
		$T_C=125^\circ C$	1.55	2.0	
Maximum Average forward rectified current @ $T_C=140^\circ C$	$I_{F(AV)}$			8	A
Non-repetitive peak forward surge current @ 8.3ms single half sine wave superimposed on rated load (JEDEC method)	$I_{FSM}$			100	A
Maximum instantaneous reverse current at	$I_R$	$V_R=600V, T_C=25^\circ C$		10	$\mu A$
		$V_R=600V, T_C=125^\circ C$		500	
Maximum reverse recovery time	$t_{rr}$			30	ns
Typical junction capacitance @ $f=1MHz$ and applied 4V reverse voltage	$C_J$		48		pF
Storage temperature range	$T_{stg}$	-65		+175	$^\circ C$
Operating junction temperature range	$T_J$	-65		+175	$^\circ C$

**Thermal Data**

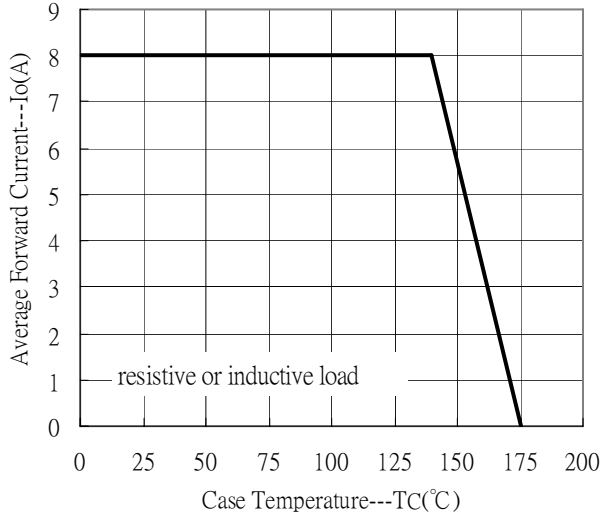
Parameter	Symbol	Value	Unit
Maximum Thermal Resistance, Junction-to-case	$R_{th,j-c}$	2.2	$^\circ C/W$
Maximum Thermal Resistance, Junction-to-ambient	$R_{th,j-a}$	62.5	$^\circ C/W$

**Ordering Information**

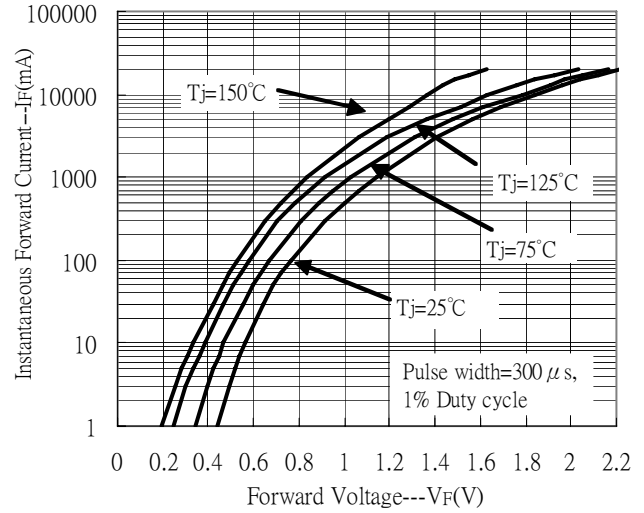
Device	Package	Shipping
MSR0860E2	TO-220AC (RoHS compliant package)	50 pcs / Tube, 40 Tubes/Box

## Typical Characteristics

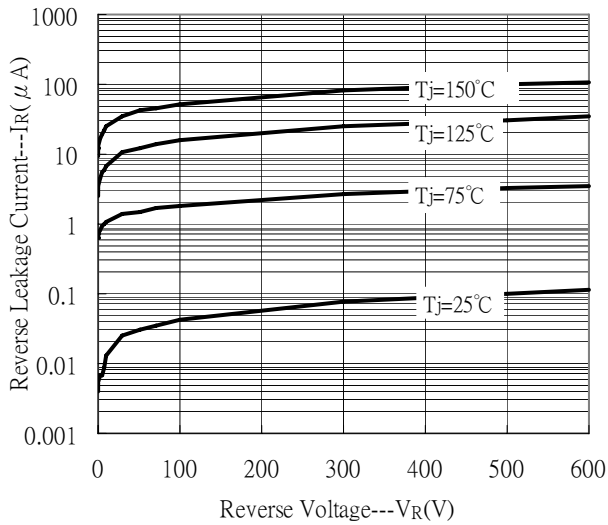
Forward Current Derating Curve



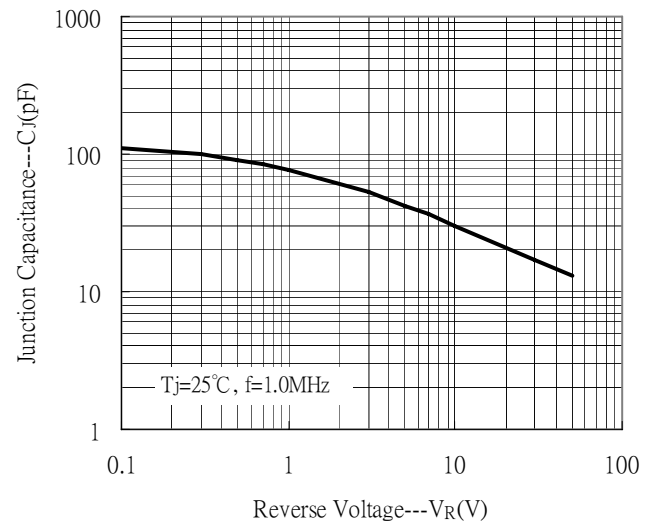
Forward Current vs Forward Voltage



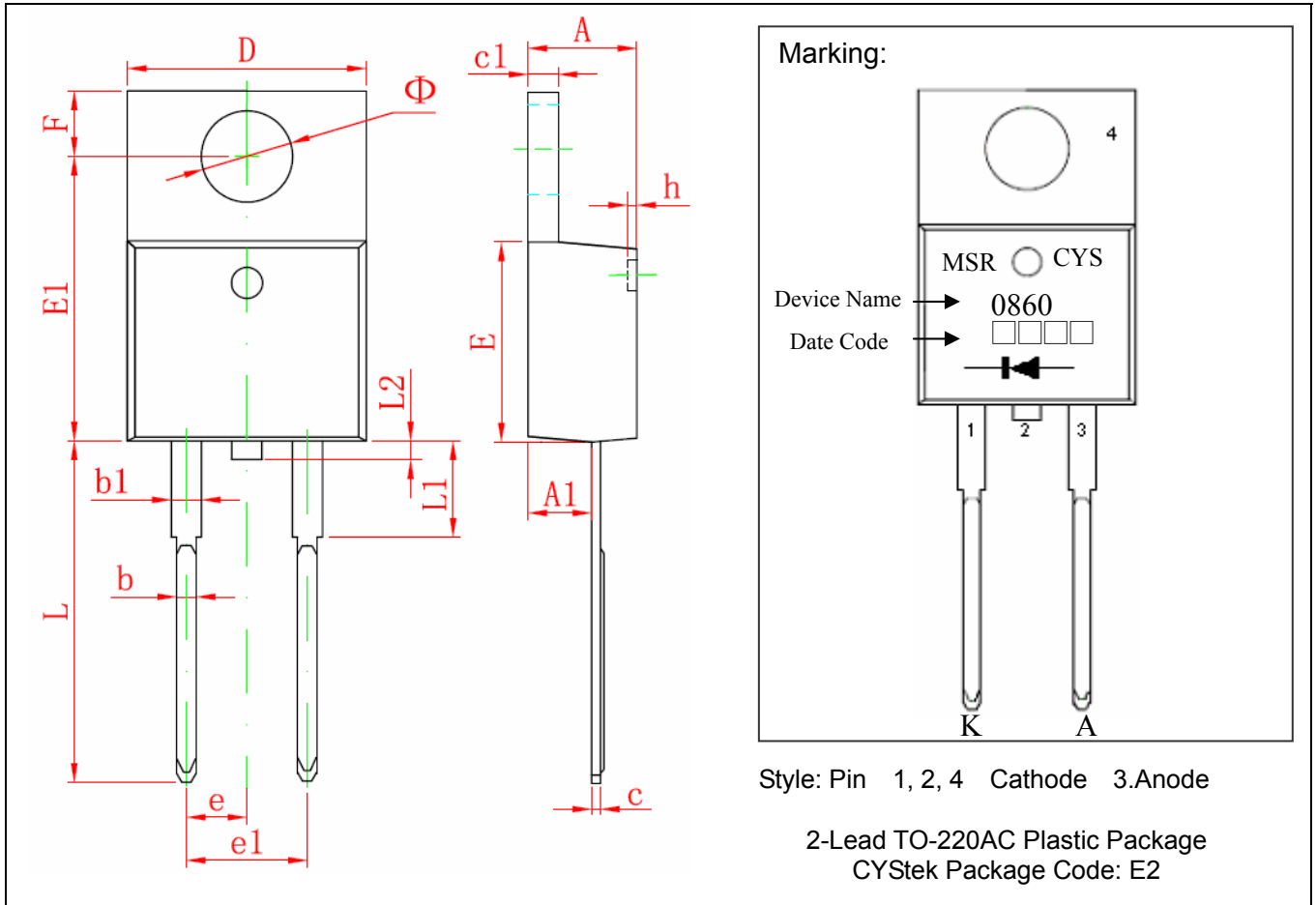
Reverse Leakage Current vs Reverse Voltage



Junction Capacitance vs Reverse Voltage



**TO-220AC Dimension**



**Marking:**

Device Name → MSR CYS  
 Date Code → 0860

Style: Pin 1, 2, 4 Cathode 3.Anode  
 2-Lead TO-220AC Plastic Package  
 CYStek Package Code: E2

DIM	Millimeters		Inches		DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	4.470	4.670	0.176	0.184	e	2.540	TYP	0.100	TYP
A1	2.520	2.820	0.099	0.111	e1	4.980	5.180	0.196	0.204
b	0.710	0.910	0.028	0.036	F	2.590	2.890	0.102	0.114
b1	1.170	1.370	0.046	0.054	h	0.000	0.300	0.000	0.012
c	0.310	0.530	0.012	0.021	L	13.400	13.800	0.528	0.543
c1	1.170	1.370	0.046	0.054	L1	3.560	3.960	0.140	0.156
D	10.010	10.310	0.394	0.406	L2	0.000	1.000	0.000	0.039
E	8.500	8.900	0.335	0.350	Φ	3.735	3.935	0.147	0.155
E1	12.060	12.460	0.475	0.491					

**Notes:** 1.Controlling dimension: millimeters.  
 2.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.  
 3.If there is any question with packing specification or packing method, please contact your local CYStek sales office.

**Material:**

- Lead: Pure tin plated.
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0.

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