



**Solid State Devices, Inc.**

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## SER30KB60 / SER30KE60 Series

### 30 AMP 300-600 VOLT ULTRAFAST POWER SURFACE MOUNT RECTIFIER

#### Designer's Data Sheet

##### Part Number / Ordering Information <sup>1/</sup>

SER30 \_ 60 \_

L Screening<sup>2/</sup> = None  
TX = TX Level  
TXV = TXV Level  
S = S Level

L Voltage

L Configuration

KB = without lead  
KE = with lead

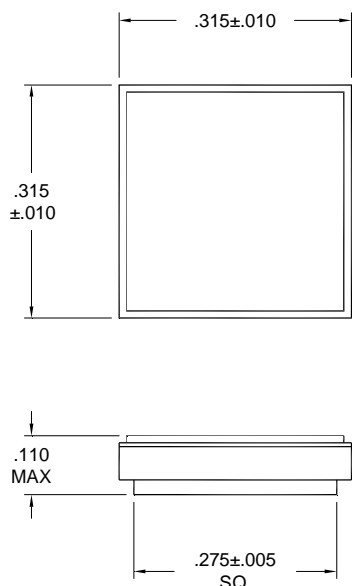
##### FEATURES:

- Low Reverse Leakage
- Low Forward Voltage Drop
- Hermetically Sealed Power Surface Mount Package
- TX, TXV, and Space Level Screening Available<sup>2/</sup>

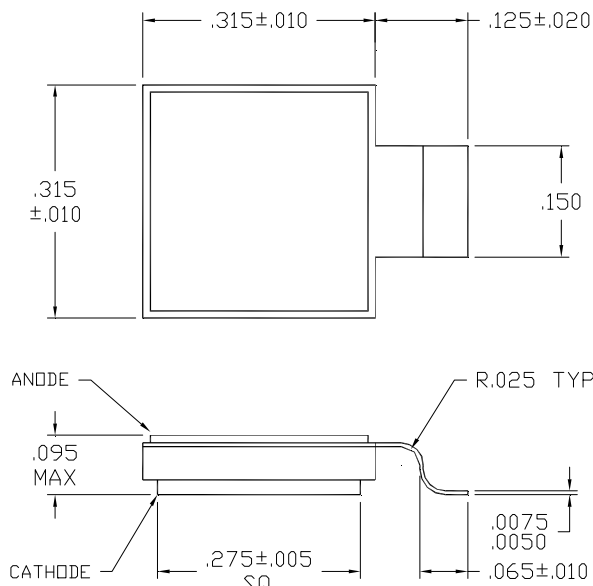
MAXIMUM RATINGS		Symbol	Value	Units
Peak Repetitive Reverse Voltage and DC Blocking Voltage	SER30KE30, SER30KB30	$V_{RRM}$	300	Volts
	SER30KE40, SER30KH40	$V_{RWM}$	400	
	SER30KE50, SER30KB50	$V_R$	500	
	SER30KE60, SER30KB60		600	
Average Rectified Forward Current (Resistive Load, 60 Hz, Sine Wave, $T_A = 100^\circ\text{C}$ )		$I_O$	30	Amps
Peak Surge Current (8.3 ms Pulse, Half Sine Wave, Superimposed on $I_O$ , Allow Junction to Reach Equilibrium between Pulses, $T_A = 25^\circ\text{C}$ )		$I_{FSM}$	400	Amps
Operating and Storage Temperature		$T_{OP} \text{ \& } T_{stg}$	-55 to +200	$^\circ\text{C}$
Maximum Thermal Resistance Junction to Case		$R_{\theta JC}$	1.2	$^\circ\text{C/W}$

##### CASE OUTLINE: KB60 Series

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**NOTE:** All specifications are subject to change without notification.  
SCD's for these devices should be reviewed by SSDI prior to release.

**DATA SHEET #: RC0128A**

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## SER30KB60 / SER30KE60 Series

ELECTRICAL CHARACTERISTICS		Symbol	Minimum	Maximum	Unit
<b>Instantaneous Forward Voltage Drop</b> ( $I_F = 5\text{ A}$ , 300 $\mu\text{sec}$ Pulse)	$T_A = -55^\circ\text{C}$	$V_{F1a}$	1070	-	$\text{mV}_{\text{DC}}$
	$T_A = 25^\circ\text{C}$	$V_{F1b}$	950	-	
	$T_A = 100^\circ\text{C}$	$V_{F1c}$	760	-	
	$T_A = 125^\circ\text{C}$	$V_{F1d}$	710	-	
	$T_A = 150^\circ\text{C}$	$V_{F1e}$	650	-	
<b>Instantaneous Forward Voltage Drop</b> ( $I_F = 10\text{ A}_{\text{DC}}$ , 300 $\mu\text{sec}$ Pulse)	$T_A = -55^\circ\text{C}$	$V_{F2a}$	1150	-	$\text{mV}_{\text{DC}}$
	$T_A = 25^\circ\text{C}$	$V_{F2b}$	1050	1150	
	$T_A = 100^\circ\text{C}$	$V_{F2c}$	860	-	
	$T_A = 125^\circ\text{C}$	$V_{F2d}$	810	975	
	$T_A = 150^\circ\text{C}$	$V_{F2e}$	750	-	
<b>Instantaneous Forward Voltage Drop</b> ( $I_F = 20\text{ A}_{\text{DC}}$ , $T_A = +125^\circ\text{C}$ , 300 $\mu\text{sec}$ Pulse)	$T_A = -55^\circ\text{C}$	$V_{F3a}$	1260	-	$\text{mV}_{\text{DC}}$
	$T_A = 25^\circ\text{C}$	$V_{F3b}$	1170	-	
	$T_A = 100^\circ\text{C}$	$V_{F3c}$	1000	-	
	$T_A = 125^\circ\text{C}$	$V_{F3d}$	950	-	
	$T_A = 150^\circ\text{C}$	$V_{F3e}$	880	-	
<b>Instantaneous Forward Voltage Drop</b> ( $I_F = 30\text{ A}_{\text{DC}}$ , $T_A = +125^\circ\text{C}$ , 300 $\mu\text{sec}$ Pulse)	$T_A = -55^\circ\text{C}$	$V_{F4a}$	1340	-	$\text{mV}_{\text{DC}}$
	$T_A = 25^\circ\text{C}$	$V_{F4b}$	1260	1400	
	$T_A = 100^\circ\text{C}$	$V_{F4c}$	1100	-	
	$T_A = 125^\circ\text{C}$	$V_{F4d}$	1050	1250	
	$T_A = 150^\circ\text{C}$	$V_{F4e}$	990	-	
<b>Instantaneous Forward Voltage Drop</b> ( $I_F = 50\text{ A}_{\text{DC}}$ , $T_A = +125^\circ\text{C}$ , 300 $\mu\text{sec}$ Pulse)	$T_A = -55^\circ\text{C}$	$V_{F5a}$	1480	-	$\text{mV}_{\text{DC}}$
	$T_A = 25^\circ\text{C}$	$V_{F5b}$	1400	-	
	$T_A = 100^\circ\text{C}$	$V_{F5c}$	1240	-	
	$T_A = 125^\circ\text{C}$	$V_{F5d}$	1190	-	
	$T_A = 150^\circ\text{C}$	$V_{F5e}$	1150	-	
<b>Reverse Leakage Current</b> (Rated $V_R$ , 300 $\mu\text{sec}$ pulse minimum)	$T_A = 25^\circ\text{C}$	$I_{R1}$	0.1	10	$\mu\text{A}$
	$T_A = 100^\circ\text{C}$	$I_{R2}$	6	-	
	$T_A = 125^\circ\text{C}$	$I_{R3}$	25	500	
	$T_A = 150^\circ\text{C}$	$I_{R4}$	80	-	
<b>Junction Capacitance</b> ( $V_R = 5\text{ V}_{\text{DC}}$ , $T_A = 25^\circ\text{C}$ , $f = 1\text{ MHz}$ )	$V_R = 5\text{ V}$	$C_J$	190	-	$\text{pF}$
	$V_R = 10\text{ V}$		140	250	
<b>Reverse Recovery</b>					
$I_F = 0.5\text{ A}$ , $I_R = 1\text{ A}$ , $I_{rr} = 0.25\text{ A}$		$t_{rr1}$	32	35	$\text{ns}$
$I_F = 1\text{ A}$ , $I_R = 1\text{ A}$ , $I_{rr} = 0.1\text{ A}$		$t_{rr2}$	75	-	$\text{ns}$
$I_F = 10\text{ A}$ , $di_F/dt = 45\text{ A}/\mu\text{s}$ , $T_A = 25^\circ\text{C}$		$t_{rr3}$	46	-	$\text{ns}$
$I_F = 10\text{ A}$ , $di_F/dt = 45\text{ A}/\mu\text{s}$ , $T_A = 25^\circ\text{C}$		$I_{RM3}$	1.8	-	$\text{A}$
$I_F = 10\text{ A}$ , $di_F/dt = 45\text{ A}/\mu\text{s}$ , $T_A = 100^\circ\text{C}$		$t_{rr4}$	115	-	$\text{ns}$
$I_F = 10\text{ A}$ , $di_F/dt = 45\text{ A}/\mu\text{s}$ , $T_A = 100^\circ\text{C}$		$I_{RM4}$	3.8	-	$\text{A}$
$I_F = 10\text{ A}$ , $di_F/dt = 100\text{ A}/\mu\text{s}$ , $T_A = 25^\circ\text{C}$		$t_{rr5}$	45	-	$\text{ns}$
$I_F = 10\text{ A}$ , $di_F/dt = 100\text{ A}/\mu\text{s}$ , $T_A = 25^\circ\text{C}$		$I_{RM5}$	3.7	-	$\text{A}$
<b>Forward Recovery</b>	$I_F = 1\text{ A}$	$t_{fr}$	60	-	$\text{ns}$
		$V_{fr}$	880	-	$\text{mV}$

**NOTES:**

- 1/ For Ordering Information, Price, Operating Curves, and Availability – Contact Factory.  
2/ Screening Based on MIL-PRF-19500.

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