

# ESF100SS60S

## Ultra-Fast Soft Recovery Diode Module

### Description

Ultra-FRD module devices are optimized to reduce losses and EMI/RFI in high frequency power conditioning electrical systems.

These diode modules are ideally suited for power converters, motors drives and other applications where switching losses are significant portion of the total losses.

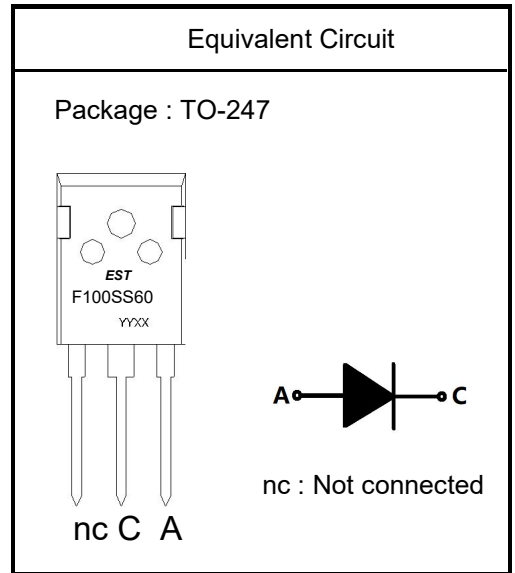
### Features

- ☞ Repetitive Reverse Voltage :  $V_{RRM} = 600V$
- ☞ Low Forward Voltage Drop :  $V_F(\text{typ.}) = 1.6V$
- ☞ Average Forward Current :  $I_F(\text{AV.}) = 100A @ T_c = 100^\circ C$
- ☞ Ultra-Fast Reverse Recovery Time :  $t_{rr}(\text{typ.}) = 120 \text{ ns}$
- ☞ Extensive Characterization of Recovery Parameters
- ☞ Reduced EMI and RFI
- ☞ Non Isolation Type Package

### Applications

Motor Drives, Welding

### Equivalent Circuit and Package



Please see the package Out line information

### Absolute Maximum Ratings @ $T_j = 25^\circ C$ (Per Diode)

Symbol	Parameter	Conditions	Ratings	Unit
$V_{RRM}$	Repetitive Peak Reverse Voltage		600	V
$V_{R(DC)}$	Reverse DC Voltage		480	V
$I_{F(AV)}$	Average Forward Current @ $T_c = 25^\circ C$ @ $T_c = 100^\circ C$	Resistive Load	200 100	A A
$I_{FSM}$	Surge(non-repetitive) Forward Current	One Half Cycle at 60Hz, Peak Value	1400	A
$I_t^2$	$I_t^2$ for Fusing	Value for One Cycle Current, $t_w = 8.3ms, T_j = 25^\circ C$ Start	$8.13 * 10^3$	$A^2s$
$T_j$	Junction Temperature		-40 ~ 150	$^\circ C$
$T_{stg}$	Storage Temperature		-40 ~ 150	$^\circ C$
$P_d$	Maximum Power Dissipation		390	W
-	Mounting Torque	Recommended (M3)	1.1	N.m
-	Weight		6	g

## Thermal Characteristics

Symbol	Parameter	Conditions	Values			Unit
			Min.	Typ.	Max.	
$R_{th(j-c)}$	Thermal Resistance	Junction to Case	-	-	0.35	°C/W

## Electrical Characteristics @ $T_J=25^\circ\text{C}$ (unless otherwise specified)

Symbol	Parameter	Conditions	Values			Unit	
			Min.	Typ.	Max.		
$V_R$	Cathode Anode Breakdown Voltage	$I_R = 100\mu\text{A}$	600	-	-	V	
$V_{FM}$	Maximum Forward Voltage	$I_{FM} = 100\text{A}, T_c = 25^\circ\text{C}$	-	1.6	1.9	V	
		$^\circ\text{C}$	-	1.4	-	V	
$I_{RRM}$	Repetitive Peak Reverse Current	$T_c = 100^\circ\text{C}, V_{RRM}$ applied	-	-	1.0	mA	
$t_{rr}$	Reverse Recovery Time	$I_{FM} = 100\text{A},$ $V_R = 400\text{V}$ $di/dt = -1200\text{A}/\mu\text{s}$	$T_c = 25^\circ\text{C}$	-	120	160	ns
		$T_c = 100^\circ\text{C}$	-	160	-	ns	

## Order Information

Order codes	Silkscreen	Package	Packaging
ESF100SS60S	F100S60	T0-247	

# Package Out Line Information

