

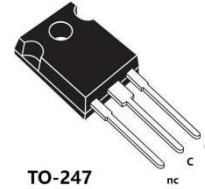
ESTF100SS60S/ESTF100SS60U

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



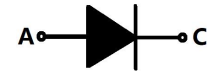
TO-247

ESTF100SS60S



TO-247-2

ESTF100SS60U



nc : Not connected

Features

- Repetitive Reverse Voltage: $V_{RRM}=600V$
- Low Forward Voltage Drop: $V_F(\text{typ.})=1.6V$
- Average forward Current: $I_F(AV.)=100A@T_c=100^\circ C$
- 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
- RoHS product

Applications

- Motor Drives, Welding

Absolute Maximum Ratings ($T_c=25^\circ C$, Unless otherwise specified)

Symbol	Parameter	ratings	Unit
V_{RRM}	Repetitive peak reverse voltage	600	V
$I_{F(AV)}$	Average forward current @ $T_c=25^\circ C$	200	A
	Average forward current @ $T_c=100^\circ C$	100	A
I_{FSM}	Surge(non-repetitive) Forward Current @ $t=10ms$	1400	A
I^2t	I^2t 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	$-40 \sim +150$	$^\circ C$
T_{STG}	Storage temperature range	$-40 \sim +150$	$^\circ C$
P_D	Maximum Power Dissipation	390	W
-	Mounting Torque(M3)	1.1	N • m
-	Weight	6	g

Electrical Specifications ($T_C=25^{\circ}\text{C}$, Unless otherwise specified)

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

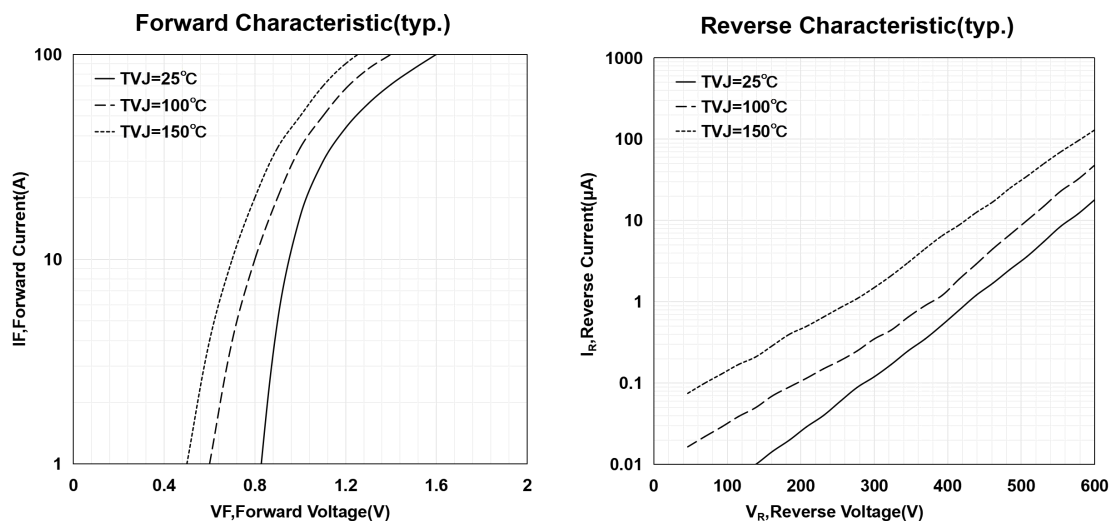
Thermal Characteristics

Symbol	Parameter	Conditions	Values			Unit
			Min.	Typ.	Max.	
$R_{th(j-c)}$	Thermal Resistance From Junction to Case		-	-	0.35	$^{\circ}\text{C}/\text{W}$
$R_{th(j-a)}$	Thermal Resistance From Junction to Ambient		-	-	65	$^{\circ}\text{C}/\text{W}$

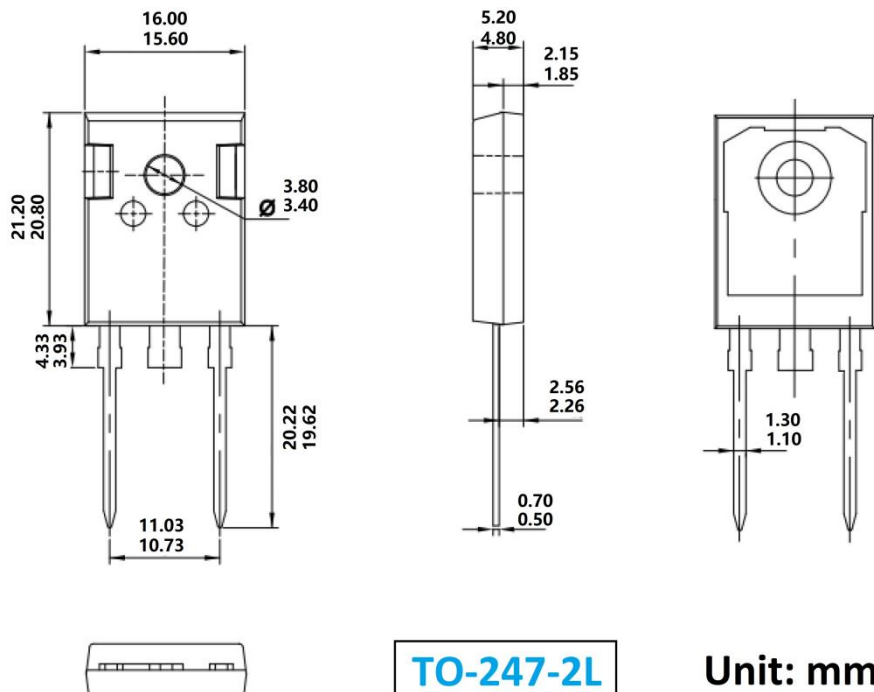
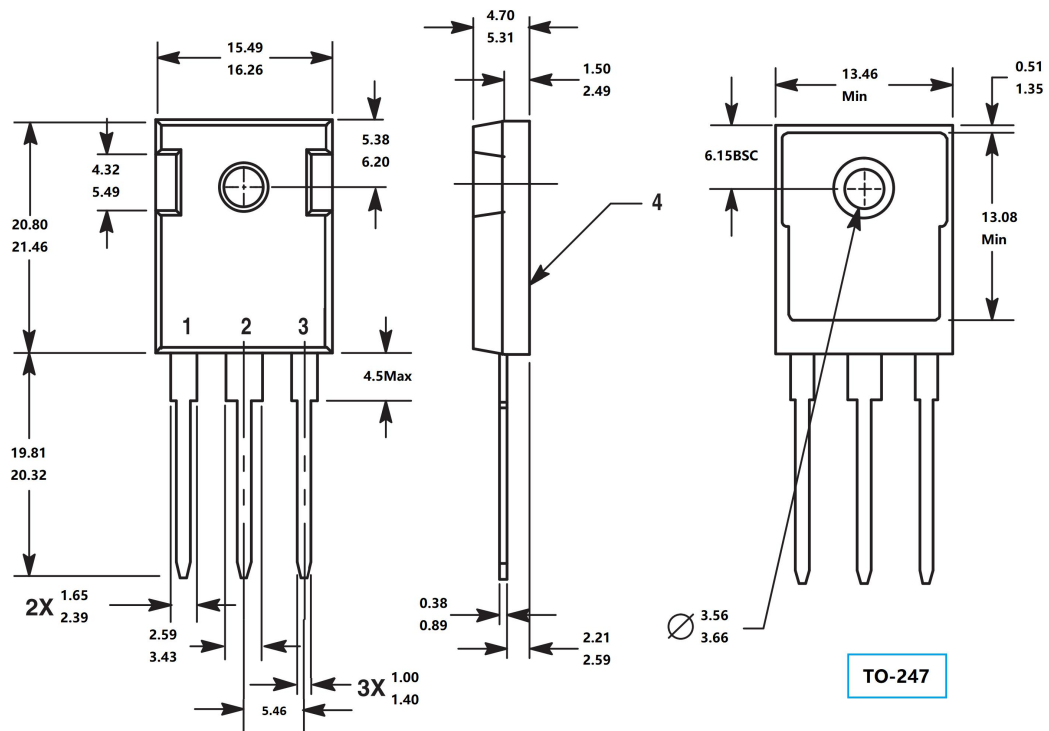
Order Codes

Order codes	Silkscreen	Package	Packaging
ESTF100SS60S	F100S60	TO-247	
ESTF100SS60U	F100SS60U	TO-247-2	

Typical Performance Curves



Package



Unit: mm