

Description

SX15N10Y-L series are from Advanced Power innovated design and silicon process technology to achieve the lowest possible on-resistance

and fast switching performance. It provides the designer with an extreme efficient device for use in a wide range of power applications.

General Features

$V_{DS} = 100V$ $I_D = 15A$

$R_{DS(ON)} < 120m\Omega$ @ $V_{GS}=10V$

$V_{DS} = 100V$ $I_D = 15A$

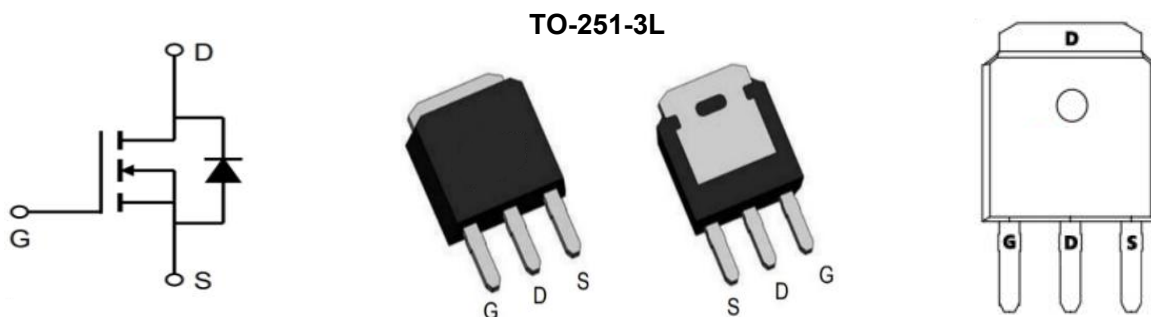
$R_{DS(ON)} < 135m\Omega$ @ $V_{GS}=10V$

Application

Battery protection

Load switch

Uninterruptible power supply



Absolute Maximum Ratings@ $T_J=25^\circ C$ (unless otherwise specified)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	100	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D @ T_C=25^\circ C$	Drain Current, V_{GS} @ 10V	14.1	A
$I_D @ T_C=100^\circ C$	Drain Current, V_{GS} @ 10V	8.1	A
I_{DM}	Pulsed Drain Current ¹	28	A
$P_D @ T_C=25^\circ C$	Total Power Dissipation	20.8	W
$P_D @ T_A=25^\circ C$	Total Power Dissipation ³	2	W
E_{AS}	Single Pulse Avalanche Energy ⁴	8	mJ
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ C$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ C$
R_{thj-c}	Maximum Thermal Resistance, Junction-case	6	$^\circ C/W$
R_{thj-a}	Maximum Thermal Resistance, Junction-ambient (PCB mount) ³	62.5	$^\circ C/W$

Electrical Characteristics@T_j=25°C(unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	100	-	-	V
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =10V, I _D =5A	-	-	120	mΩ
		V _{GS} =4.5V, I _D =3A	-	-	135	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250uA	1	-	3	V
g _{fs}	Forward Transconductance	V _{DS} =10V, I _D =5A	-	17	-	S
I _{DSS}	Drain-Source Leakage Current	V _{DS} =80V, V _{GS} =0V	-	-	25	uA
I _{GSS}	Gate-Source Leakage	V _{GS} = ±20V, V _{DS} =0V	-	-	±100	nA
Q _g	Total Gate Charge	I _D =5A	-	11	17.6	nC
Q _{gs}	Gate-Source Charge	V _{DS} =80V	-	2	-	nC
Q _{gd}	Gate-Drain ("Miller") Charge	V _{GS} =10V	-	2	-	nC
t _{d(on)}	Turn-on Delay Time	V _{DS} =50V	-	6	-	ns
t _r	Rise Time	I _D =5A	-	8	-	ns
t _{d(off)}	Turn-off Delay Time	R _G =3.3Ω	-	14	-	ns
t _f	Fall Time	V _{GS} =10V	-	3	-	ns
C _{iss}	Input Capacitance	V _{GS} =0V	-	580	928	pF
C _{oss}	Output Capacitance	V _{DS} =50V	-	27	-	pF
C _{rss}	Reverse Transfer Capacitance	f=1.0MHz	-	19	-	pF
R _g	Gate Resistance	f=1.0MHz	-	2	4	Ω
V _{SD}	Forward On Voltage ²	I _S =5A, V _{GS} =0V	-	-	1.3	V
t _{rr}	Reverse Recovery Time	I _S =5A, V _{GS} =0V,	-	20	-	ns
Q _{rr}	Reverse Recovery Charge	dI/dt=100A/μs	-	18	-	nC

Typical Characteristics

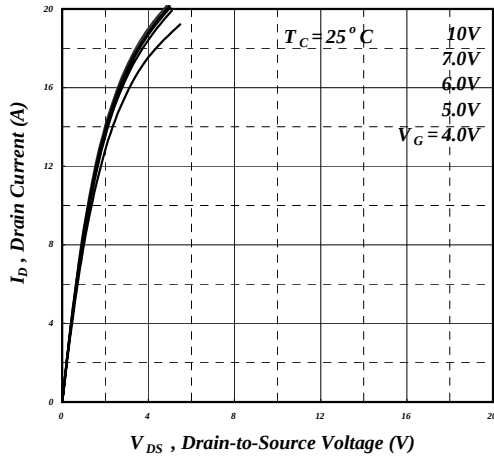


Fig 1. Typical Output Characteristics

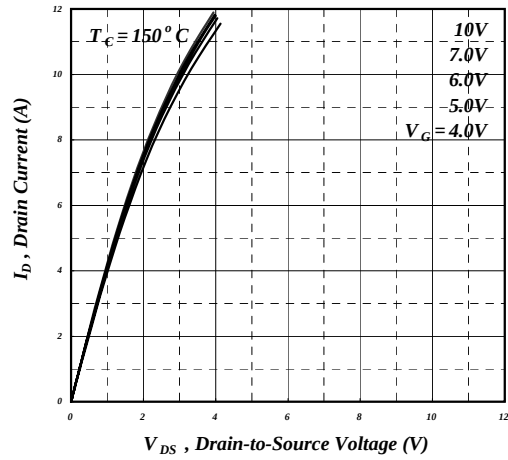


Fig 2. Typical Output Characteristics

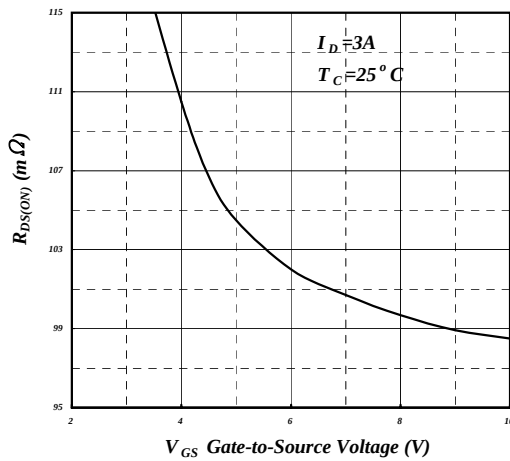


Fig 3. On-Resistance v.s. Gate Voltage

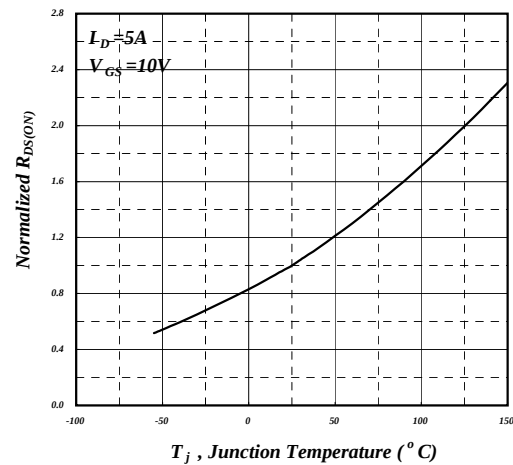


Fig 4. Normalized On-Resistance v.s. Junction Temperature

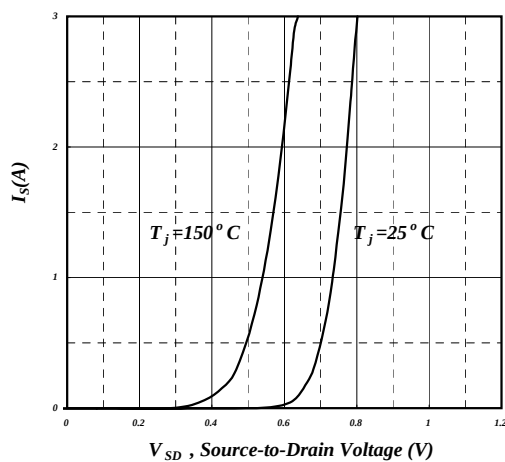


Fig 5. Forward Characteristic of Reverse Diode

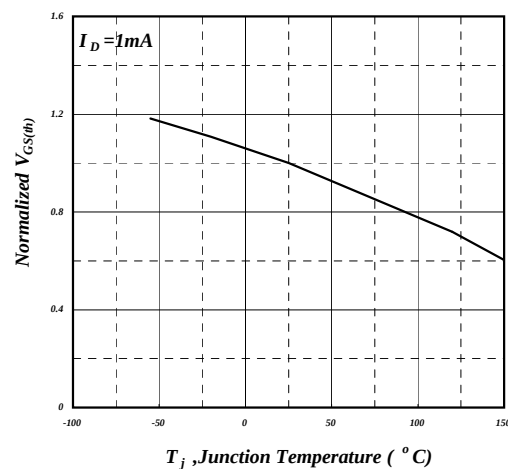
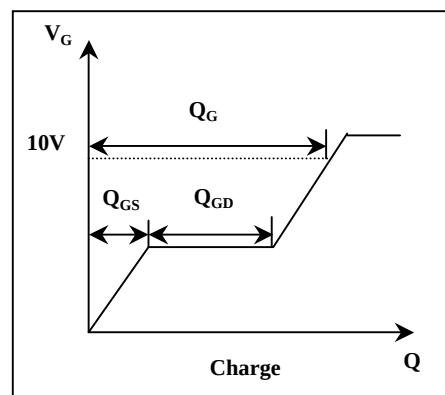
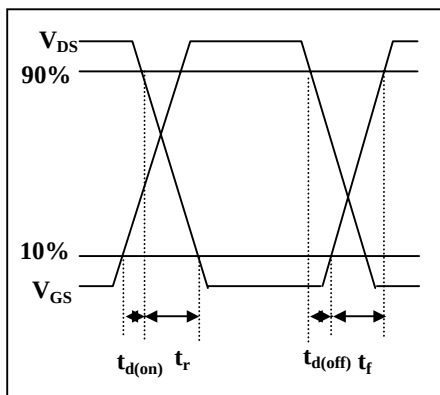
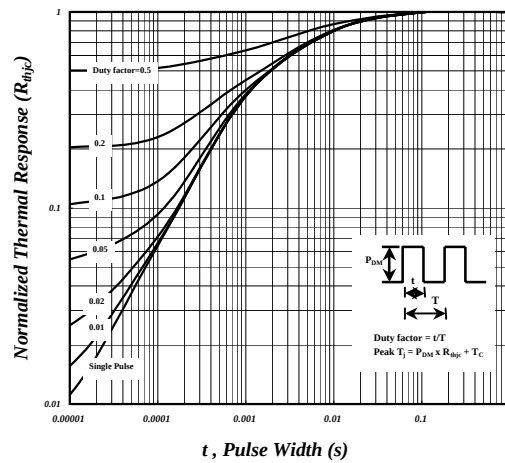
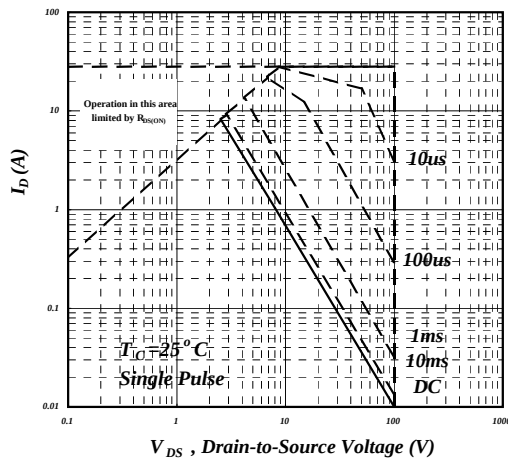
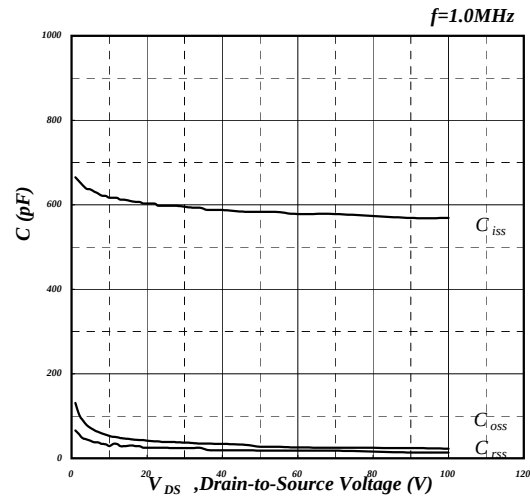
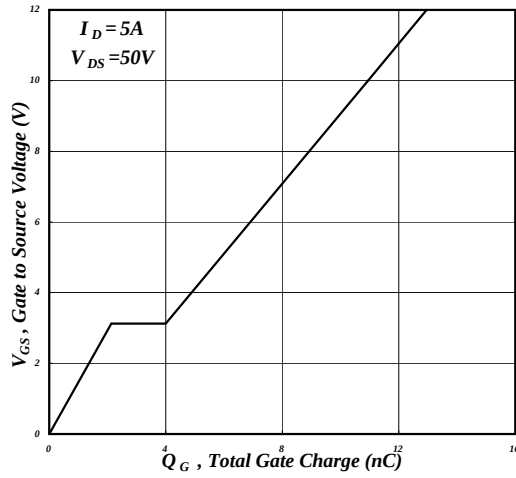


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

Typical Characteristics



Typical Characteristics

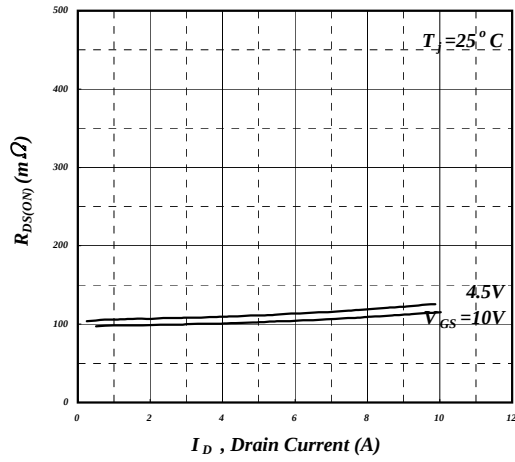


Fig 13. Typ. Drain-Source on State Resistance

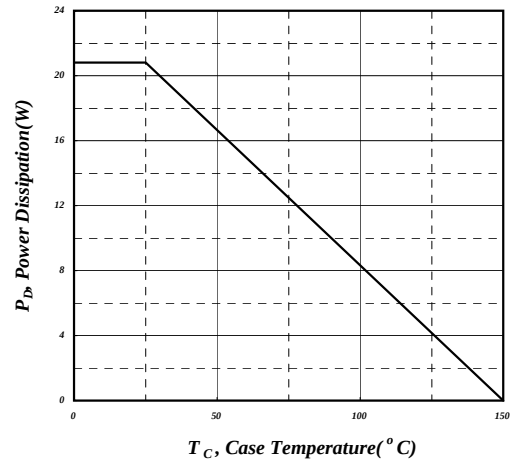


Fig 14. Total Power Dissipation

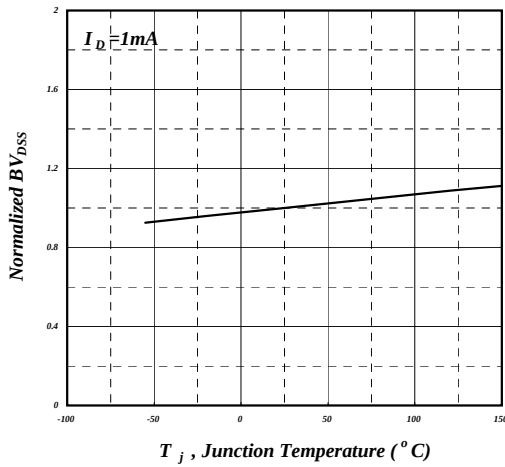
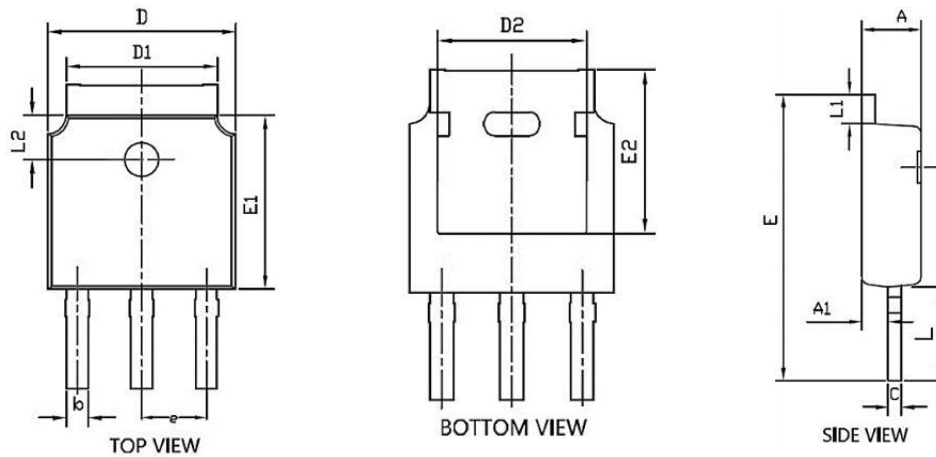


Fig 15. Normalized BV_{DS} v.s. Junction

Package Mechanical Data-TO-251-3L



Symbol	Common		
	mm		
	Mim	Nom	Max
A	2.2	2.3	2.4
A1	0.9	1.0	1.1
b	0.66	0.76	0.86
C	0.46	0.52	0.58
D	6.50	6.6	6.7
D1	5.15	5.3	5.45
D2	4.6	4.8	4.95
E	10.4	----	11.5
E1	6.0	6.1	6.2
E2	5.400REF		
e	2.286BSC		
L	3.5	4.0	4.3
L1	0.9	---	1.27
L2	1.4	---	1.9

Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
TAPING	TO-251-3L		4000