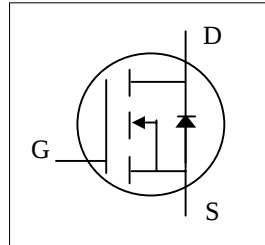
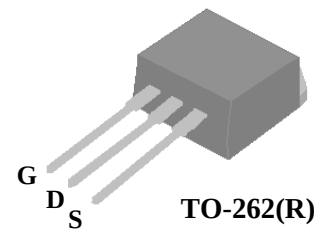


- ▼ 100% R_g & UIS Test
- ▼ Low t_{rr} / Q_{rr}
- ▼ Simple Drive Requirement
- ▼ RoHS Compliant & Halogen-Free



BV_{DSS}	600V
$R_{DS(ON)}$	115m Ω
I_D^3	28A



Description

XP60SL115D series are 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.

The TO-262 package is widely preferred for commercial-industrial through-hole applications and suited for low voltage applications such as DC/DC converters.

Absolute Maximum Ratings@ $T_j=25^\circ\text{C}$ (unless otherwise specified)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	600	V
V_{GS}	Gate-Source Voltage	± 20	V
V_{GS}	Gate-Source Voltage, AC ($f > 1\text{Hz}$)	± 30	V
$I_D@T_C=25^\circ\text{C}$	Drain Current, $V_{GS} @ 10V^3$	28	A
$I_D@T_C=100^\circ\text{C}$	Drain Current, $V_{GS} @ 10V^3$	17.7	A
I_{DM}	Pulsed Drain Current ¹	84	A
dv/dt	MOSFET dv/dt Ruggedness ($V_{DS} = 0 \dots 480V$)	20	V/ns
$P_D@T_C=25^\circ\text{C}$	Total Power Dissipation	178	W
$P_D@T_A=25^\circ\text{C}$	Total Power Dissipation	2	W
E_{AS}	Single Pulse Avalanche Energy ⁴	300	mJ
dv/dt	Peak Diode Recovery dv/dt^5	15	V/ns
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ\text{C}$

Thermal Data

Symbol	Parameter	Value	Units
R_{thj-c}	Maximum Thermal Resistance, Junction-case	0.7	$^\circ\text{C}/\text{W}$
R_{thj-a}	Maximum Thermal Resistance, Junction-ambient	62	$^\circ\text{C}/\text{W}$

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	600	-	-	V
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =10V, I _D =9.6A	-	-	115	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250uA	2	-	5	V
g _{fs}	Forward Transconductance	V _{DS} =10V, I _D =14A	-	21	-	S
I _{DSS}	Drain-Source Leakage Current	V _{DS} =480V, V _{GS} =0V	-	-	100	uA
I _{GSS}	Gate-Source Leakage	V _{GS} =+20V, V _{DS} =0V	-	-	+1	uA
Q _g	Total Gate Charge	I _D =14A	-	91	145	nC
Q _{gs}	Gate-Source Charge	V _{DS} =480V	-	20	-	nC
Q _{gd}	Gate-Drain ("Miller") Charge	V _{GS} =10V	-	42	-	nC
t _{d(on)}	Turn-on Delay Time	V _{DD} =300V	-	22	-	ns
t _r	Rise Time	I _D =14A	-	34	-	ns
t _{d(off)}	Turn-off Delay Time	R _G =3.3Ω	-	89	-	ns
t _f	Fall Time	V _{GS} =10V	-	31	-	ns
C _{iss}	Input Capacitance	V _{GS} =0V	-	3200	5120	pF
C _{oss}	Output Capacitance	V _{DS} =100V	-	100	-	pF
C _{rss}	Reverse Transfer Capacitance	f=1.0MHz	-	7	-	pF
R _g	Gate Resistance	f=1.0MHz	-	4.2	8.4	Ω

Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V _{SD}	Forward On Voltage ²	I _S =9.6A, V _{GS} =0V	-	0.85	-	V
t _{rr}	Reverse Recovery Time	I _S =14A, V _{GS} =0V	-	175	-	ns
Q _{rr}	Reverse Recovery Charge	dI/dt=100A/μs	-	1.7	-	μC

Notes:

- 1.Pulse width limited by max. junction temperature.
- 2.Pulse test
- 3.Limited by max. junction temperature. Maximum duty cycle D=0.75
- 4.Starting T_j=25°C, V_{DD}=90V, L=150mH, R_G=25Ω, V_{GS}=10V
- 5.I_{SD} ≤ I_D, V_{DD} ≤ BV_{DSS}, starting T_J = 25°C

THIS PRODUCT IS SENSITIVE TO ELECTROSTATIC DISCHARGE, PLEASE HANDLE WITH CAUTION.

USE OF THIS PRODUCT AS A CRITICAL COMPONENT IN LIFE SUPPORT OR OTHER SIMILAR SYSTEMS IS NOT AUTHORIZED.

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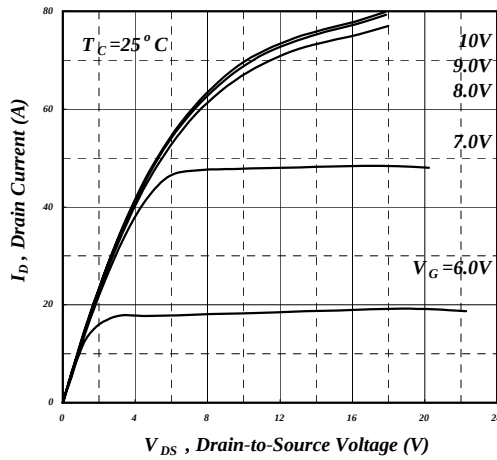


Fig 1. Typical Output Characteristics

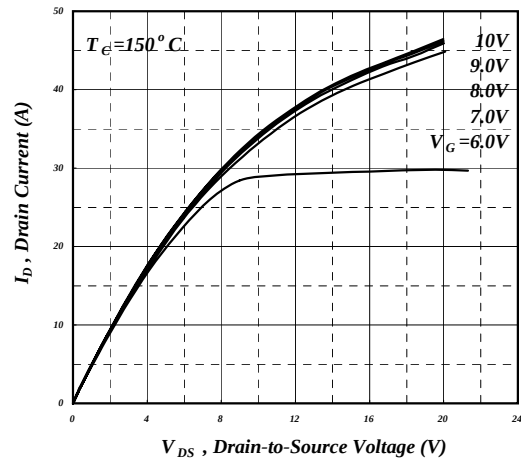


Fig 2. Typical Output Characteristics

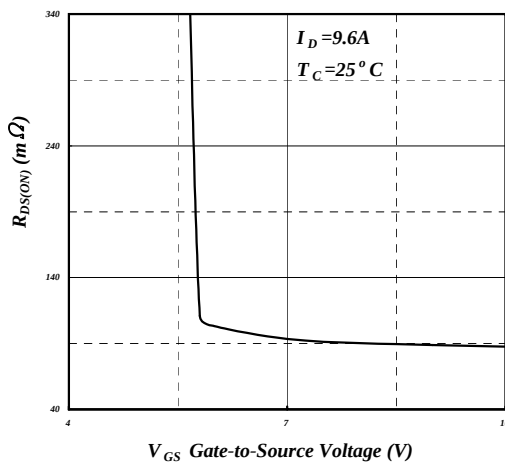
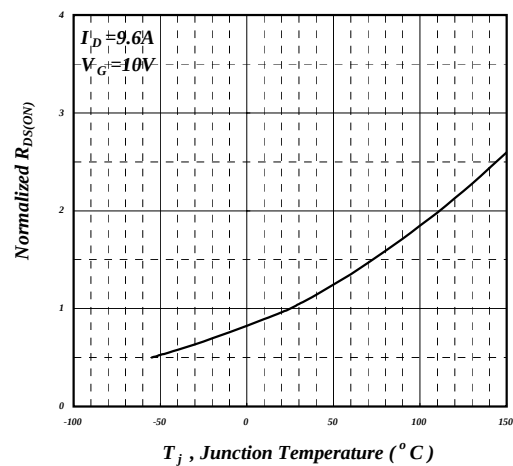
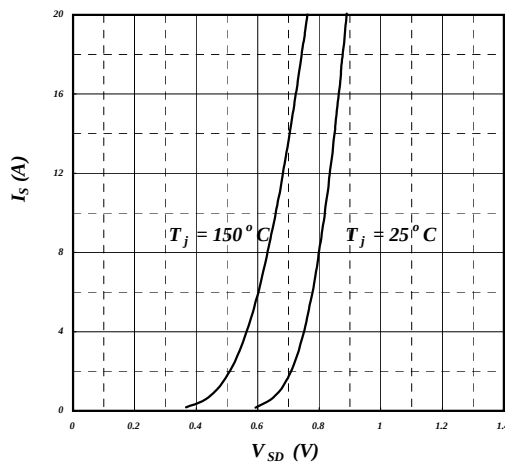


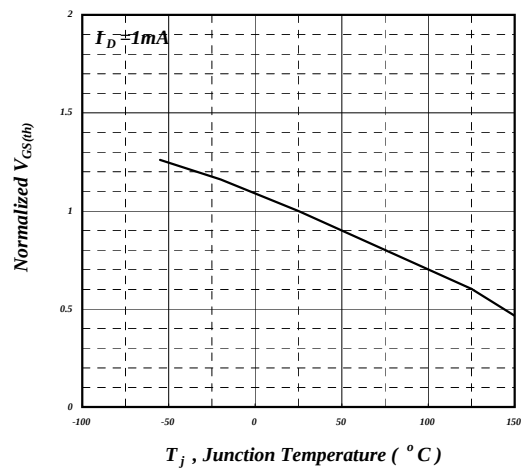
Fig 3. On-Resistance v.s. Gate Voltage



**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**

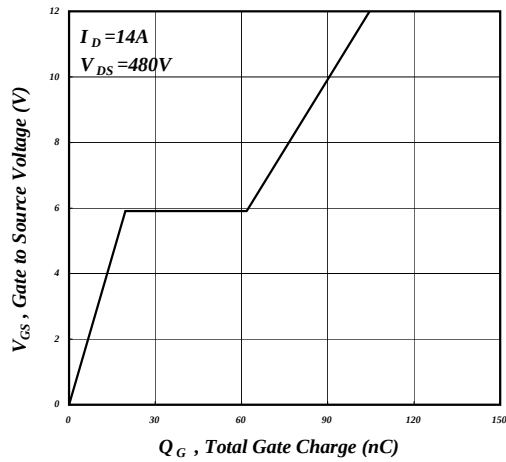


Fig 7. Gate Charge Characteristics

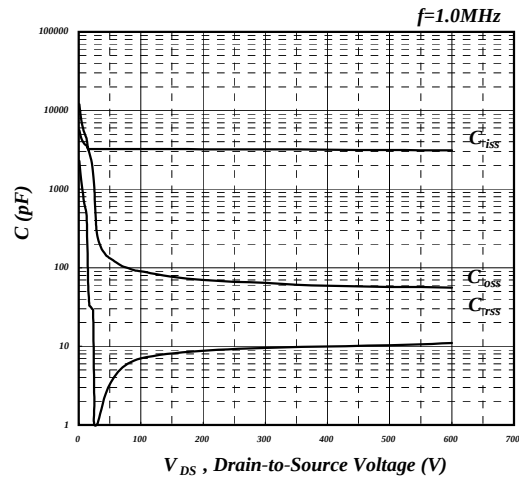


Fig 8. Typical Capacitance Characteristics

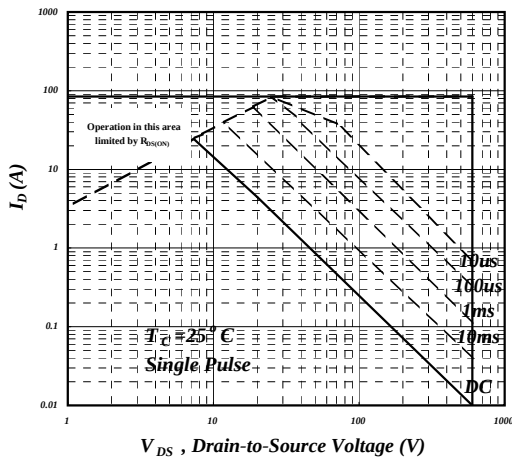


Fig 9. Maximum Safe Operating Area

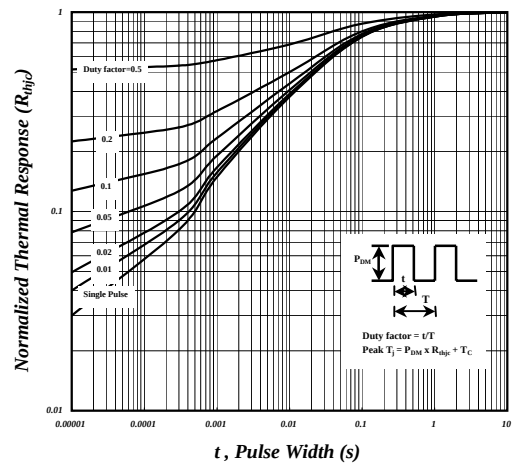


Fig 10. Effective Transient Thermal Impedance

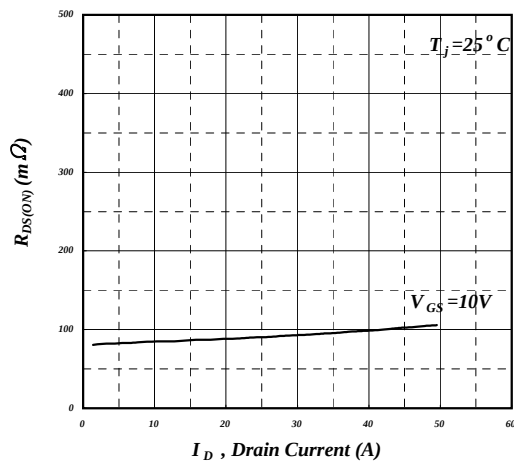


Fig 11. Typ. Drain-Source on State Resistance

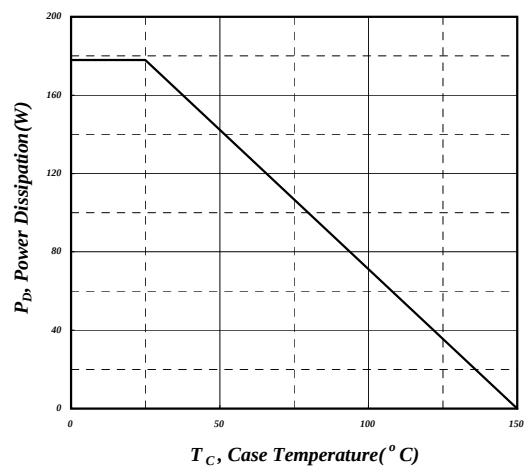
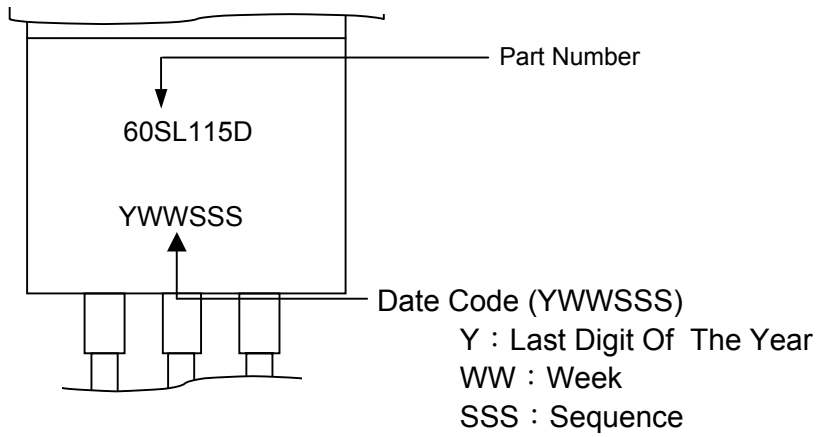
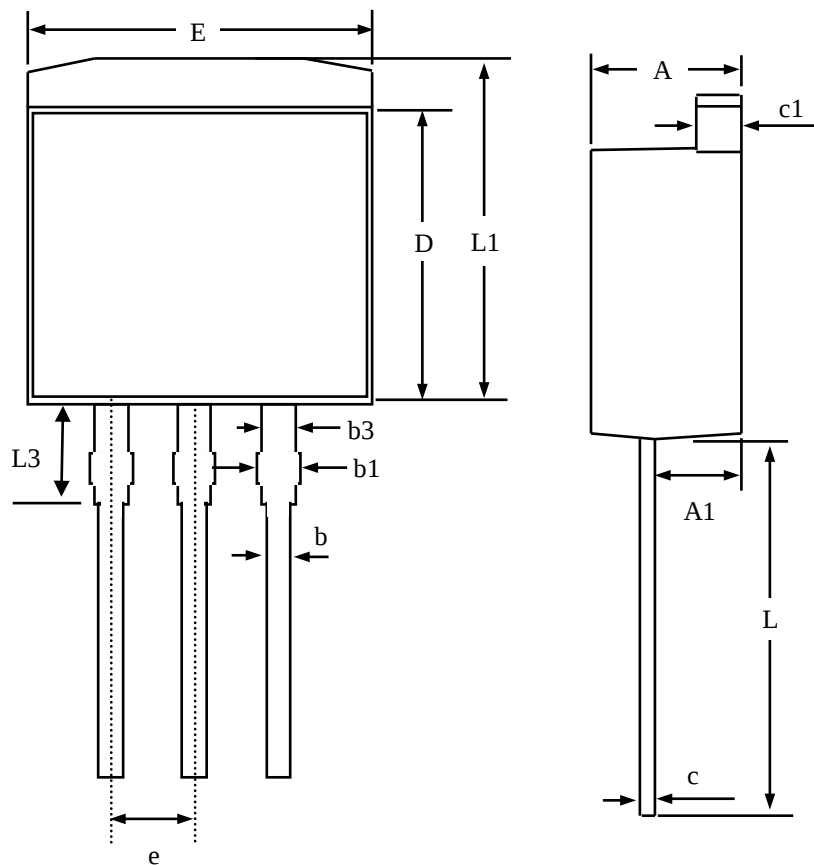


Fig 12. Total Power Dissipation

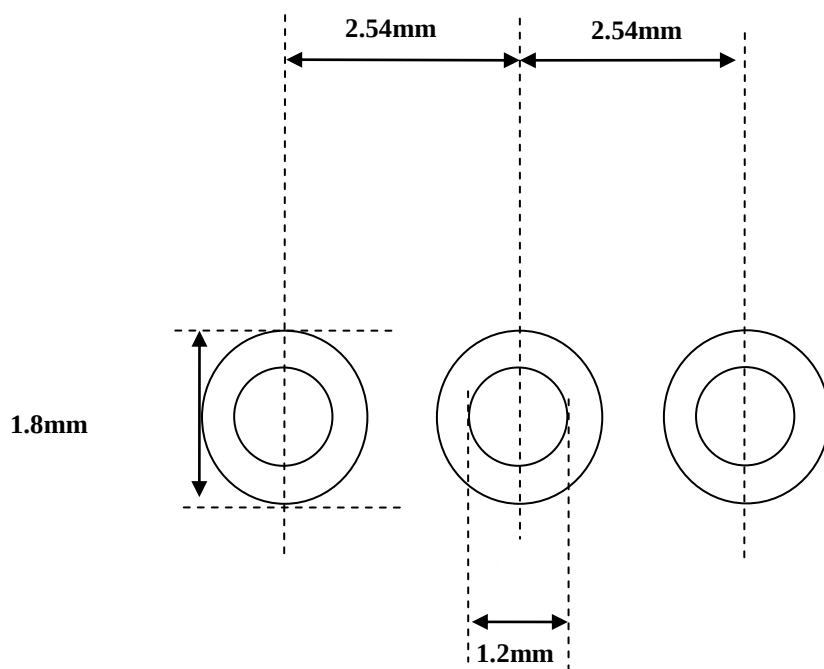
MARKING INFORMATION

Package Outline : TO-262



SYMBOLS	Millimeters		
	MIN	NOM	MAX
A	4.24	4.54	4.84
A1	2.10	2.50	2.90
b	0.65	0.85	1.05
b1	0.75	1.25	1.75
b3	0.75	1.23	1.70
c	0.28	0.44	0.60
c1	1.15	1.3	1.45
D	8.30	8.9	9.50
E	9.50	10	10.50
e	2.04	2.54	3.04
L	10.50	12.5	14.50
L1	8.50	10	11.50
L3	1.3 ~ 4.8 (ref)		

- 1.All Dimensions Are in Millimeters.
- 2.Dimension Does Not Include Mold Protrusions.

TO-262 FOOTPRINT :

Mouser Electronics

Authorized Distributor

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