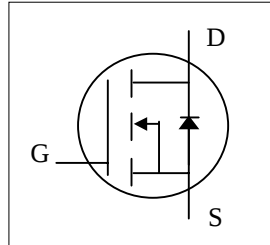
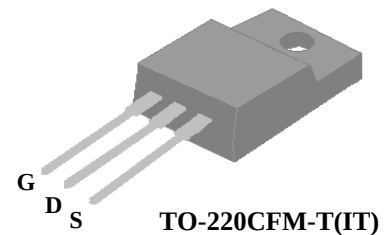


- ▼ 100% R_g & UIS Test
- ▼ Low t_{rr} / Q_{rr}
- ▼ Simple Drive Requirement
- ▼ RoHS Compliant & Halogen-Free



BV_{DSS}	600V
$R_{DS(ON)}$	95m Ω
$I_D^{3,6}$	31A



Description

XP60SC095D 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-220CFM package is widely preferred for all commercial-industrial through hole applications. The mold compound provides a high isolation voltage capability and low thermal resistance between the tab and the external heat-sink.

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 ^{3,6}	31	A
$I_D@T_C=100^\circ\text{C}$	Drain Current, V_{GS} @ 10V ^{3,6}	19.7	A
I_{DM}	Pulsed Drain Current ¹	80	A
dv/dt	MOSFET dv/dt Ruggedness ($V_{DS} = 0 \dots 480\text{V}$)	20	V/ns
$P_D@T_C=25^\circ\text{C}$	Total Power Dissipation	41.6	W
$P_D@T_A=25^\circ\text{C}$	Total Power Dissipation	1.92	W
E_{AS}	Single Pulse Avalanche Energy ⁴	200	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	3	$^\circ\text{C}/\text{W}$
R_{thj-a}	Maximum Thermal Resistance, Junction-ambient	65	$^\circ\text{C}/\text{W}$

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 =1mA	600	-	-	V
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =10V, I _D =10A	-	-	95	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250uA	2	-	4	V
g _{fs}	Forward Transconductance	V _{DS} =10V, I _D =10A	-	20	-	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 ⁷	I _D =10A	-	70	112	nC
Q _{gs}	Gate-Source Charge ⁷	V _{DS} =480V	-	20	-	nC
Q _{gd}	Gate-Drain ("Miller") Charge ⁷	V _{GS} =10V	-	30	-	nC
t _{d(on)}	Turn-on Delay Time ⁷	V _{DD} =300V	-	30	-	ns
t _r	Rise Time ⁷	I _D =10A	-	45	-	ns
t _{d(off)}	Turn-off Delay Time ⁷	R _G =10Ω	-	130	-	ns
t _f	Fall Time ⁷	V _{GS} =10V	-	30	-	ns
C _{iss}	Input Capacitance ⁷	V _{GS} =0V	-	2760	4416	pF
C _{oss}	Output Capacitance ⁷	V _{DS} =400V	-	70	-	pF
C _{rss}	Reverse Transfer Capacitance ⁷	f=1.0MHz	-	10	-	pF
R _g	Gate Resistance	f=1.0MHz	-	6	12	Ω

Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V _{SD}	Forward On Voltage ²	I _S =10A, V _{GS} =0V	-	0.8	1.5	V
t _{rr}	Reverse Recovery Time ⁷	I _S =5A, V _{GS} =0V	-	140	-	ns
Q _{rr}	Reverse Recovery Charge ⁷	di/dt=100A/μs	-	1	-	uC

Notes:

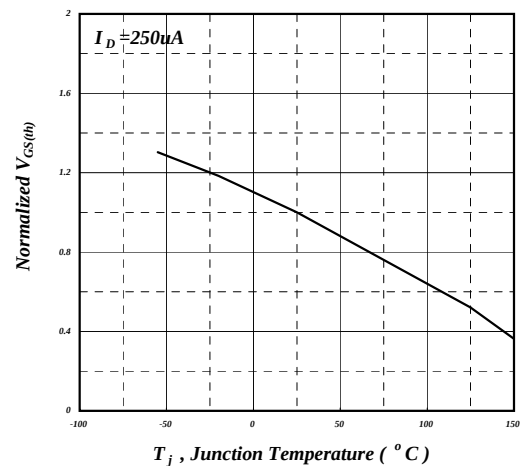
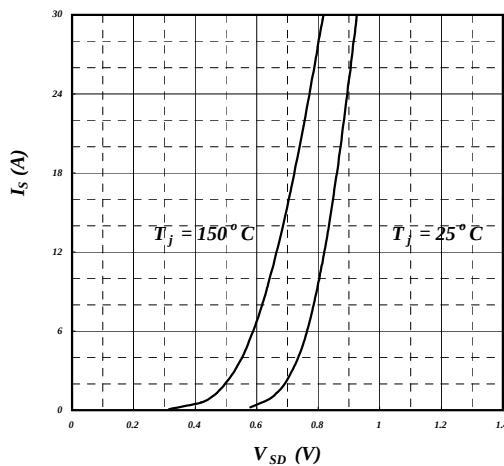
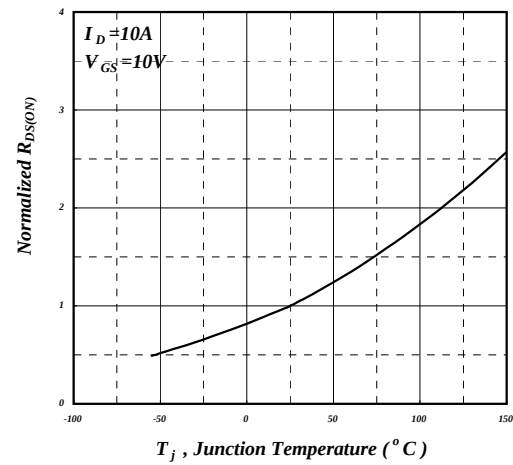
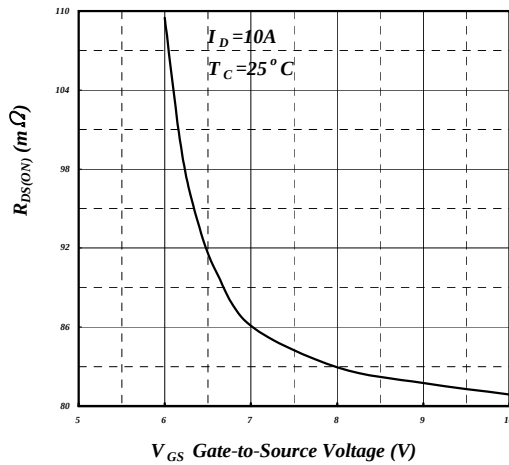
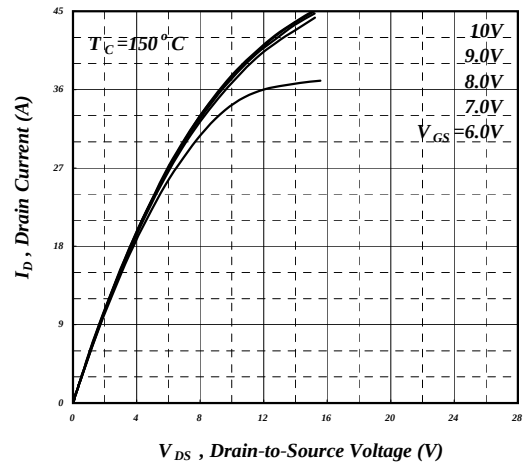
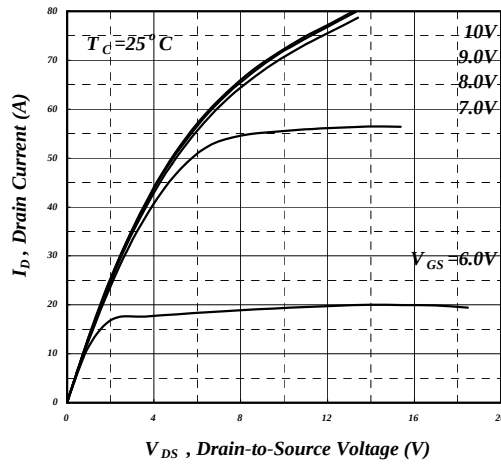
- 1.Pulse width limited by max. junction temperature.
- 2.Pulse test
- 3.Ensure that the junction temperature does not exceed T_{Jmax}.
- 4.Starting T_j=25°C , V_{DD}=90V , L=100mH , R_G=25Ω , V_{GS}=10V
- 5.I_{SD} ≤ I_D, V_{DD} ≤ BV_{DSS}, starting T_j = 25°C
- 6.Limited by max. junction temperature. Maximum duty cycle D=0.75
- 7.Guaranteed by design.

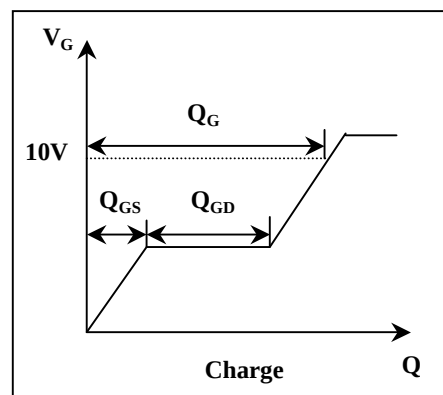
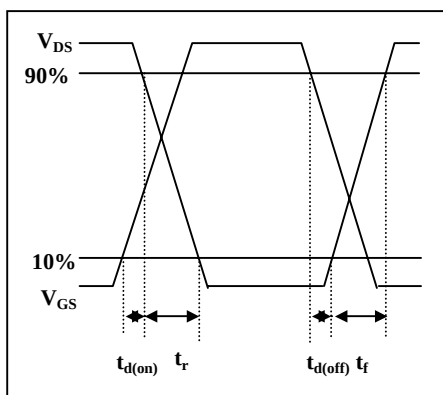
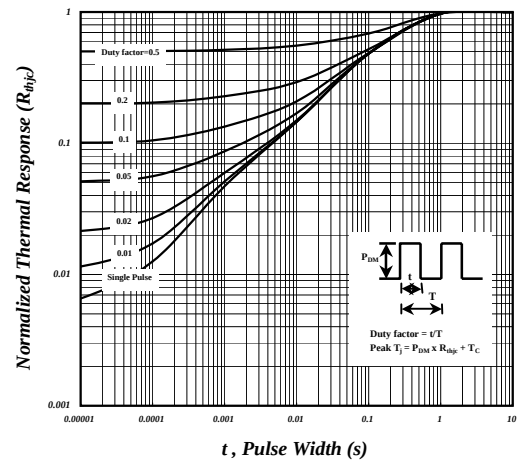
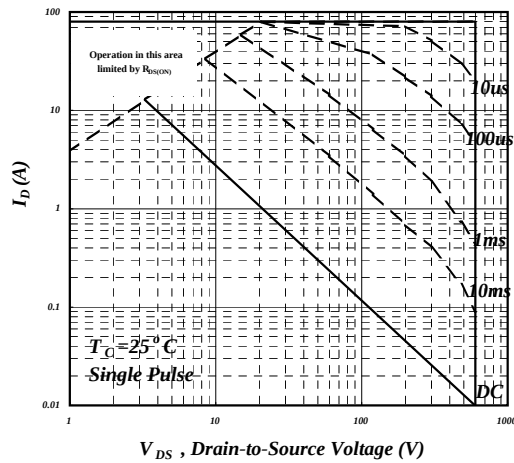
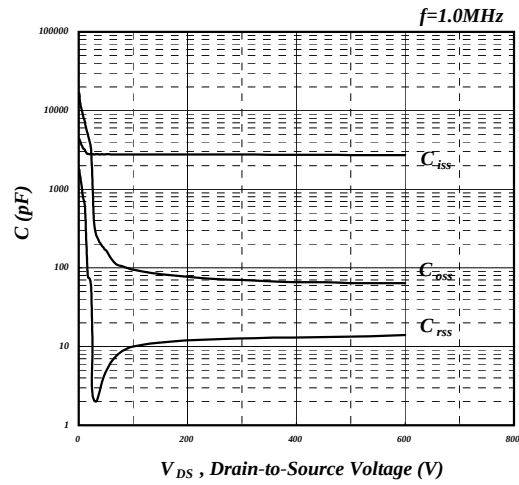
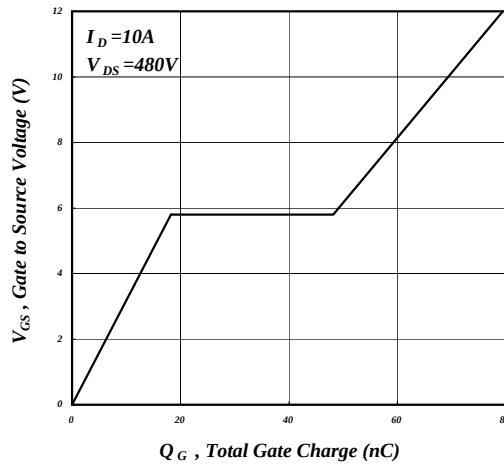
THIS PRODUCT IS SENSITIVE TO ELECTROSTATIC DISCHARGE, PLEASE HANDLE WITH CAUTION.

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

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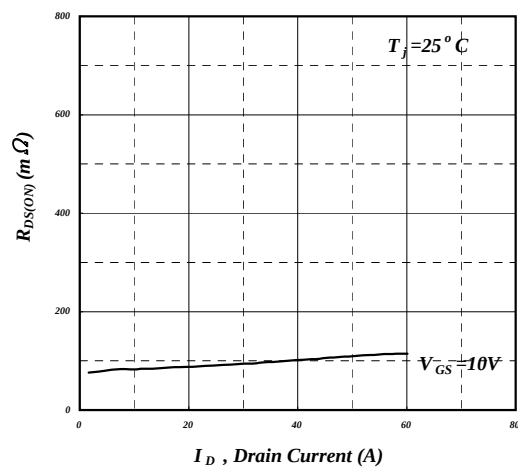


Fig 13. Typ. Drain-Source on State Resistance

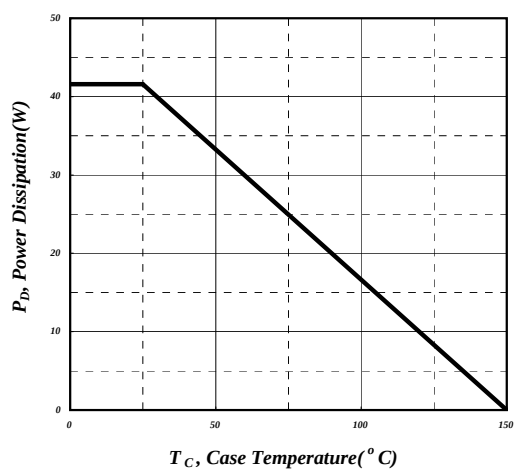
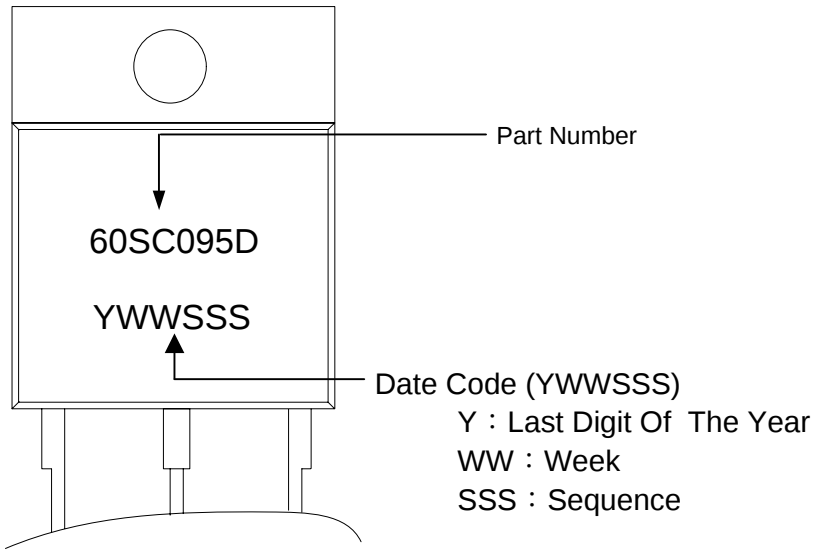


Fig 14. Total Power Dissipation

MARKING INFORMATION



TO-220CFM-T FOOTPRINT :

