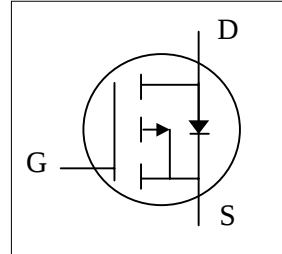




- ▼ Low On-resistance
- ▼ Simple Drive Requirement
- ▼ Fast Switching Characteristic
- ▼ Halogen Free & RoHS Compliant Product

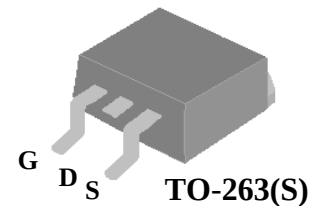


BV_{DS}	-60V
$R_{DS(ON)}$	12.5m Ω
I_D	-105A

Description

AP9571 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.

The TO-263 package is widely preferred for all commercial-industrial surface mount applications using infrared reflow technique and suited for high current application due to the low connection resistance.



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-60	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D @ T_C = 25^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ 10\text{V}$	-105	A
$I_D @ T_C = 100^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ 10\text{V}$	-67	A
I_{DM}	Pulsed Drain Current ¹	-300	A
$P_D @ T_C = 25^\circ\text{C}$	Total Power Dissipation	250	W
$P_D @ T_A = 25^\circ\text{C}$	Total Power Dissipation ³	3.13	W
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	0.5	$^\circ\text{C/W}$
R_{thj-a}	Maximum Thermal Resistance, Junction-ambient (PCB mount) ³	40	$^\circ\text{C/W}$



AP9571GS-HF

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	-60	-	-	V
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =-10V, I _D =-30A	-	-	12.5	mΩ
		V _{GS} =-4.5V, I _D =-20A	-	-	17	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 =-30A	-	60	-	S
I _{DSS}	Drain-Source Leakage Current	V _{DS} =-48V, 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 =-30A	-	63	100	nC
Q _{gs}	Gate-Source Charge	V _{DS} =-48V	-	11	-	nC
Q _{gd}	Gate-Drain ("Miller") Charge	V _{GS} =-4.5V	-	37	-	nC
t _{d(on)}	Turn-on Delay Time	V _{DS} =-30V	-	12.5	-	ns
t _r	Rise Time	I _D =-30A	-	54	-	ns
t _{d(off)}	Turn-off Delay Time	R _G =3.3Ω	-	125	-	ns
t _f	Fall Time	V _{GS} =-10V	-	140	-	ns
C _{iss}	Input Capacitance	V _{GS} =0V	-	6000	9600	pF
C _{oss}	Output Capacitance	V _{DS} =-25V	-	940	-	pF
C _{rss}	Reverse Transfer Capacitance	f=1.0MHz	-	320	-	pF
R _g	Gate Resistance	f=1.0MHz	-	4.3	8.6	Ω

Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V _{SD}	Forward On Voltage ²	I _S =-30A, V _{GS} =0V	-	-	-1.3	V
t _{rr}	Reverse Recovery Time	I _S =-10A, V _{GS} =0V,	-	60	-	ns
Q _{rr}	Reverse Recovery Charge	dI/dt=-100A/μs	-	90	-	nC

Notes:

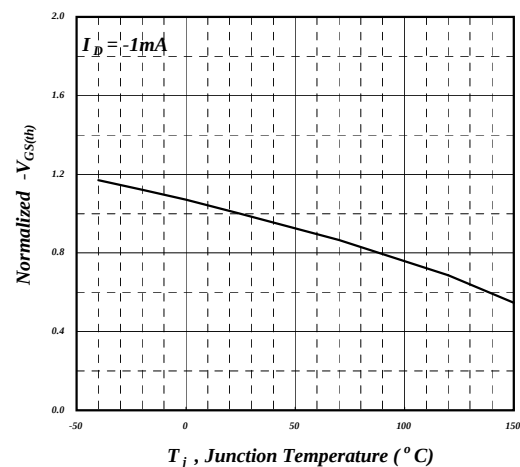
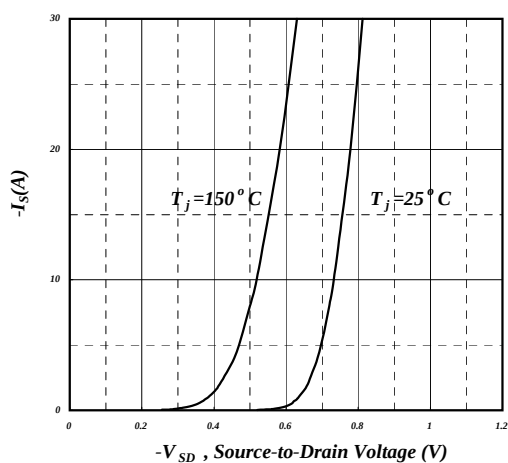
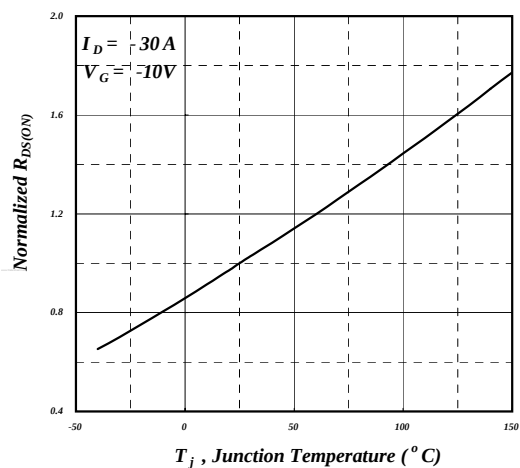
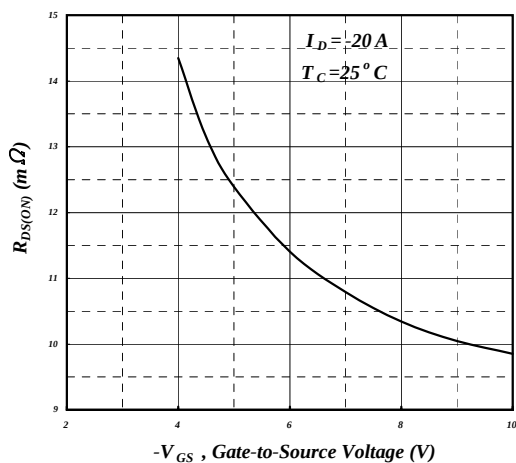
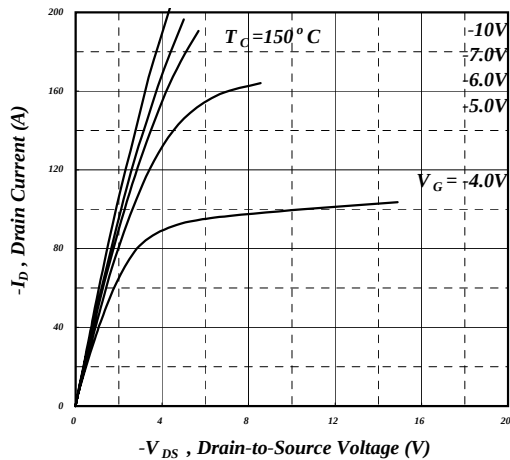
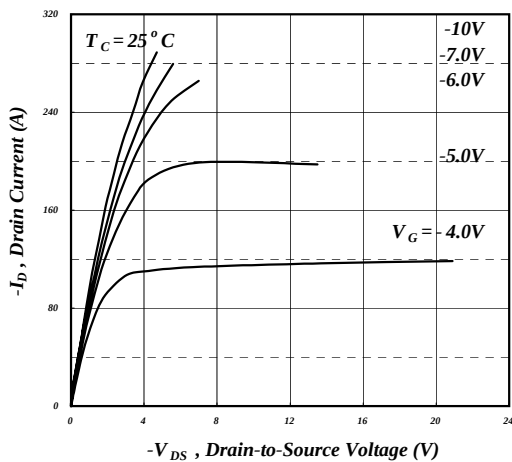
- 1.Pulse width limited by Max. junction temperature.
- 2.Pulse test
- 3.Surface mounted on 1 in² copper pad of FR4 board

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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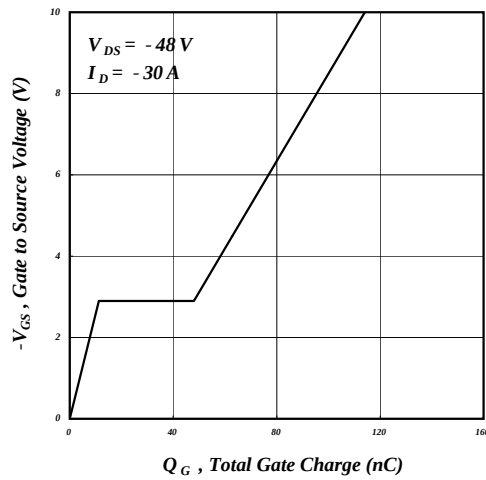


Fig 7. Gate Charge Characteristics

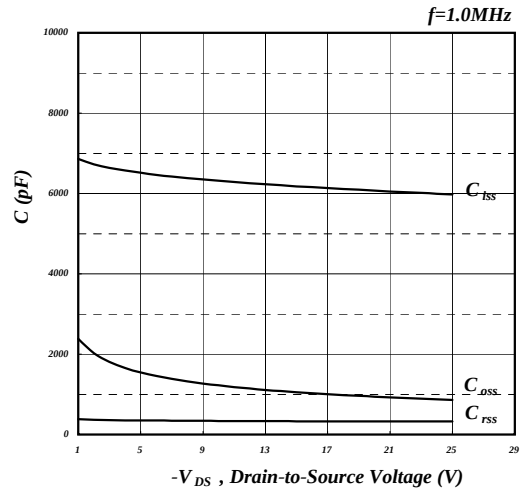


Fig 8. Typical Capacitance Characteristics

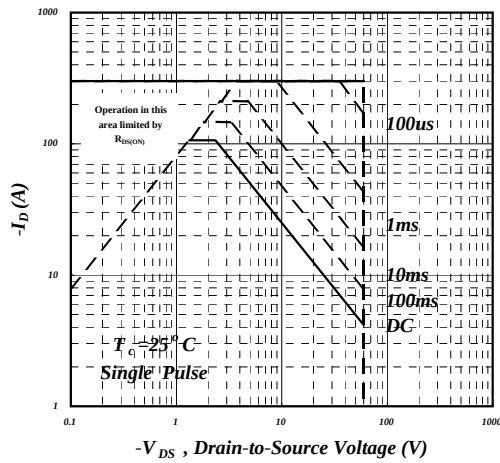


Fig 9. Maximum Safe Operating Area

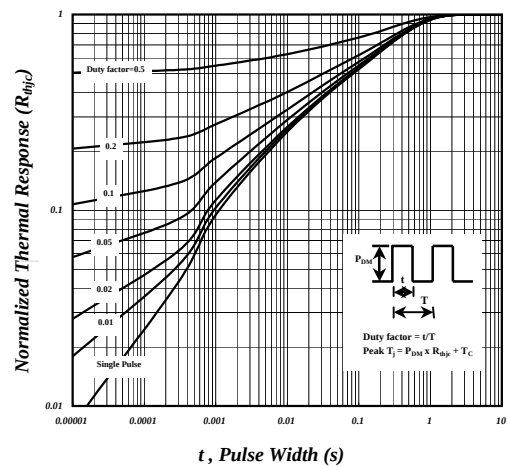


Fig 10. Effective Transient Thermal Impedance

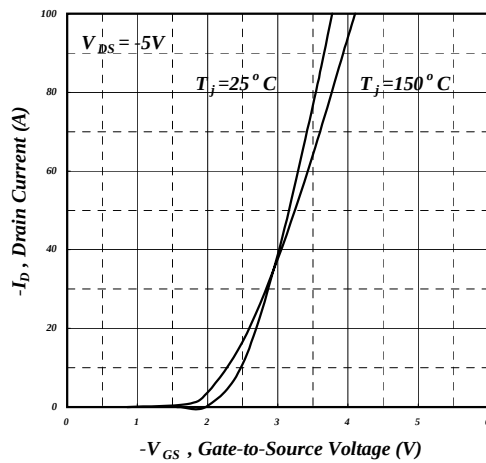


Fig 11. Transfer Characteristics

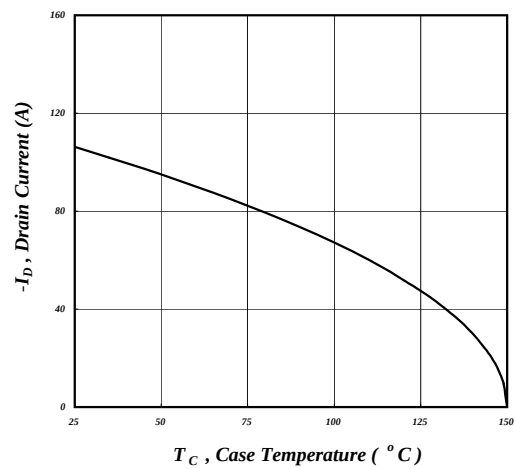


Fig 12. Maximum Continuous Drain Current v.s. Case Temperature