



**Advanced Power
Electronics Corp.**

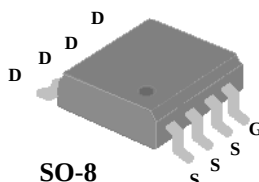
AP9474GM

RoHS-compliant Product

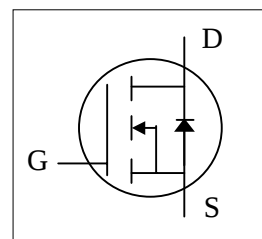
N-CHANNEL ENHANCEMENT MODE

POWER MOSFET

- ▼ Low On-resistance
- ▼ Single Drive Requirement
- ▼ Surface Mount Package



BV_{DSS}	60V
$R_{DS(ON)}$	10.5m Ω
I_D	12.8A



Description

Advanced Power MOSFETs from APEC provide the designer with the best combination of fast switching, ruggedized device design, ultra low on-resistance and cost-effectiveness.

The SO-8 package is widely preferred for commercial-industrial surface mount applications and suited for low voltage applications such as DC/DC converters.

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D @ T_A = 25^\circ\text{C}$	Continuous Drain Current ³ , V_{GS} @ 10V	12.8	A
$I_D @ T_A = 70^\circ\text{C}$	Continuous Drain Current ³ , V_{GS} @ 10V	9.6	A
I_{DM}	Pulsed Drain Current ¹	50	A
$P_D @ T_A = 25^\circ\text{C}$	Total Power Dissipation	2.5	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	Unit
Rthj-a	Maximum Thermal Resistance, Junction-ambient ³	50	$^\circ\text{C/W}$



AP9474GM

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	60	-	-	V
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =10V, I _D =12A	-	-	10.5	mΩ
		V _{GS} =6V, I _D =10A	-	-	13	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 =10A	-	9.8	-	S
I _{DSS}	Drain-Source Leakage Current	V _{DS} =48V, V _{GS} =0V	-	-	1	uA
	Drain-Source Leakage Current (T _j =70°C)	V _{DS} =48V, V _{GS} =0V	-	-	25	uA
I _{GSS}	Gate-Source Leakage	V _{GS} = ±20V	-	-	±100	nA
Q _g	Total Gate Charge ²	I _D =10A	-	51	84	nC
Q _{gs}	Gate-Source Charge	V _{DS} =48V	-	5.5	-	nC
Q _{gd}	Gate-Drain ("Miller") Charge	V _{GS} =10V	-	17	-	nC
t _{d(on)}	Turn-on Delay Time ²	V _{DS} =30V	-	10	-	ns
t _r	Rise Time	I _D =1A	-	8	-	ns
t _{d(off)}	Turn-off Delay Time	R _G =3.3Ω, V _{GS} =10V	-	43	-	ns
t _f	Fall Time	R _D =30Ω	-	20	-	ns
C _{iss}	Input Capacitance	V _{GS} =0V	-	2115	3400	pF
C _{oss}	Output Capacitance	V _{DS} =25V	-	260	-	pF
C _{rss}	Reverse Transfer Capacitance	f=1.0MHz	-	200	-	pF

Source-Drain Diode

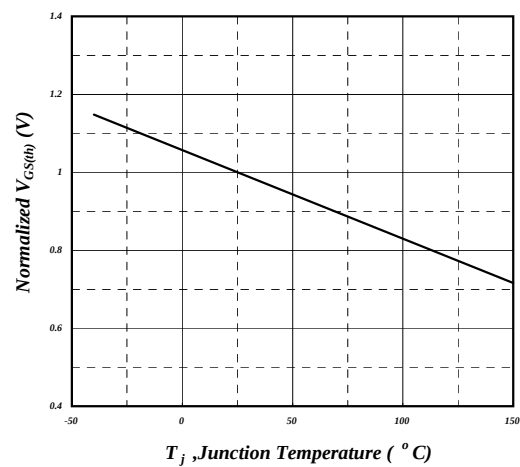
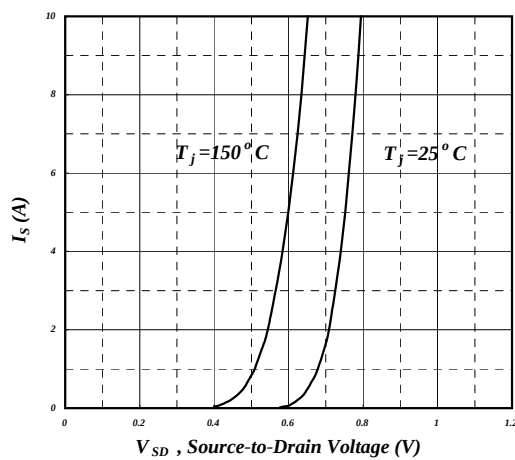
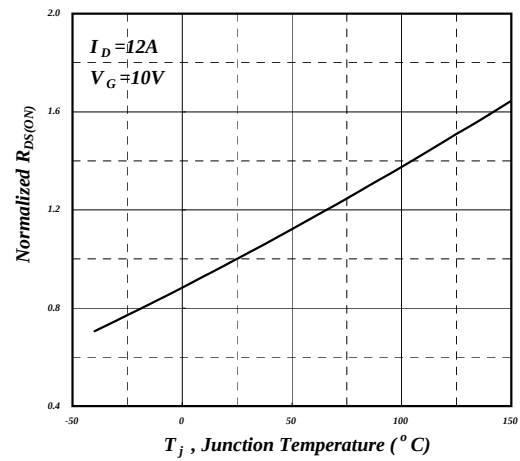
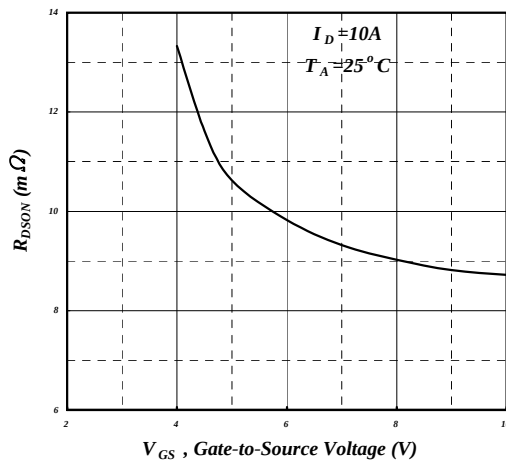
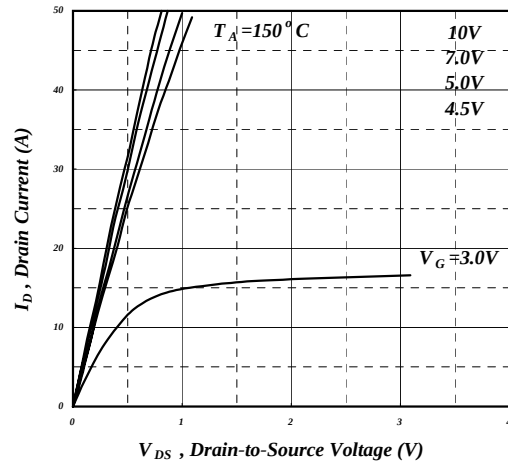
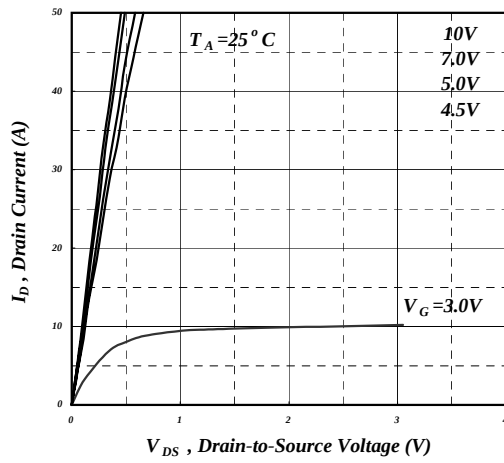
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V _{SD}	Forward On Voltage ²	I _S =1.5A, V _{GS} =0V	-	-	1.3	V
t _{rr}	Reverse Recovery Time ²	I _S =10A, V _{GS} =0V,	-	34	-	ns
Q _{rr}	Reverse Recovery Charge	di/dt=100A/μs	-	43	-	nC

Notes:

- 1.Pulse width limited by Max. junction temperature.
- 2.Pulse test
- 3.Surface mounted on 1 in² copper pad of FR4 board ; 125°C/W when mounted on min. copper pad.

THIS PRODUCT IS AN ELECTROSTATIC SENSITIVE, PLEASE HANDLE WITH CAUTION.

THIS PRODUCT HAS BEEN QUALIFIED FOR CONSUMER MARKET. APPLICATIONS OR USES AS CRITERIAL COMPONENT IN LIFE SUPPORT DEVICE OR SYSTEM ARE NOT AUTHORIZED.



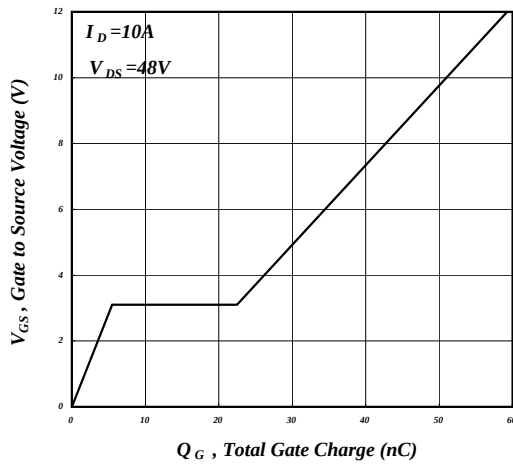


Fig 7. Gate Charge Characteristics

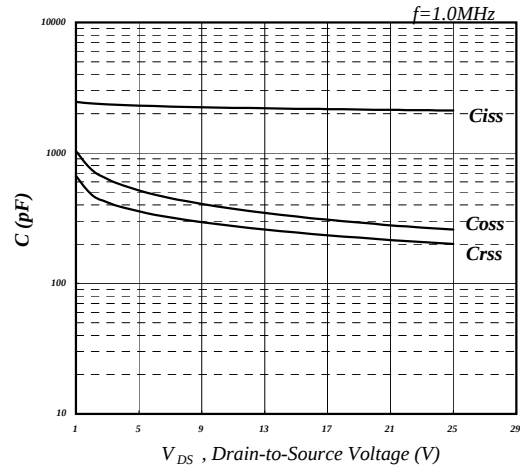


Fig 8. Typical Capacitance Characteristics

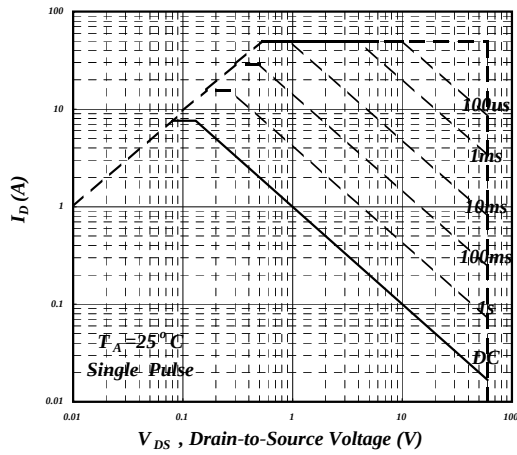


Fig 9. Maximum Safe Operating Area

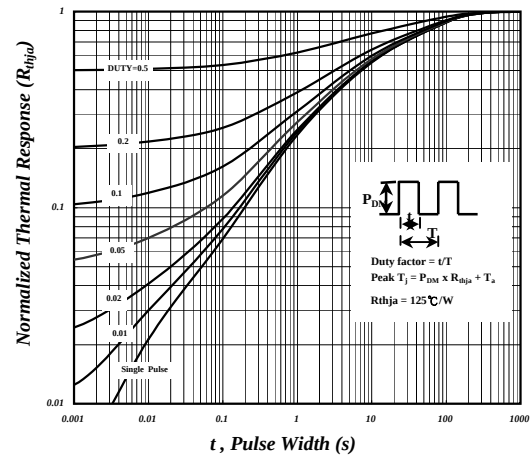


Fig 10. Effective Transient Thermal Impedance

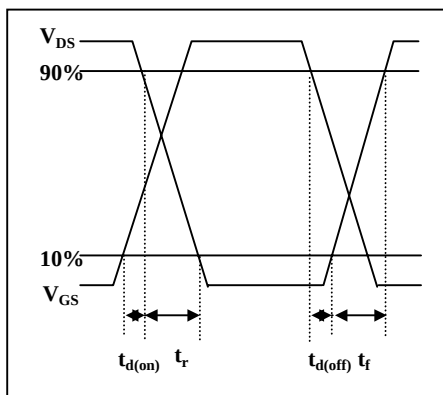


Fig 11. Switching Time Waveform

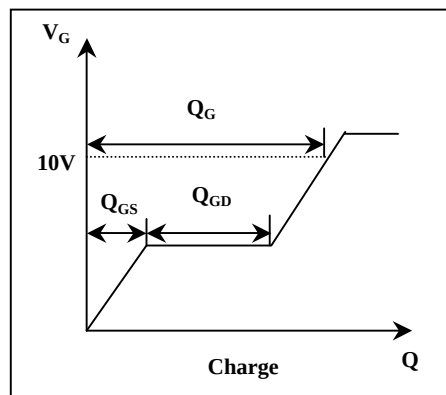
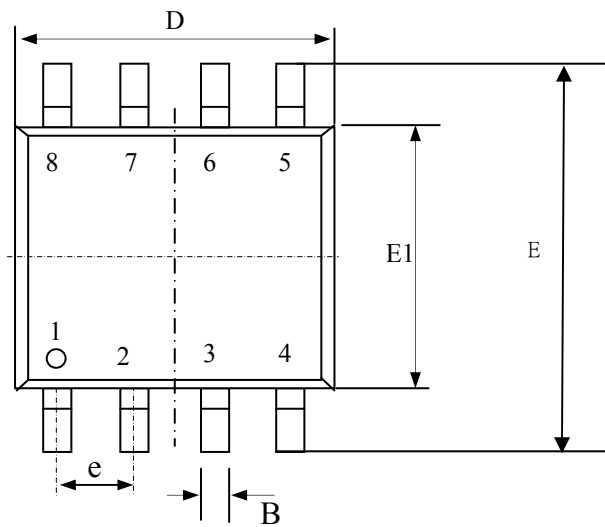


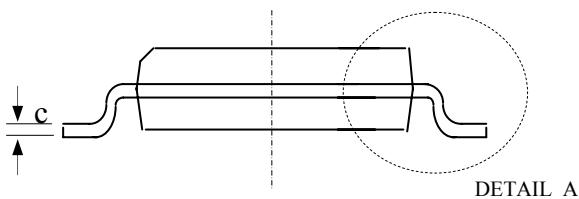
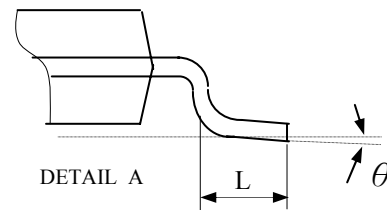
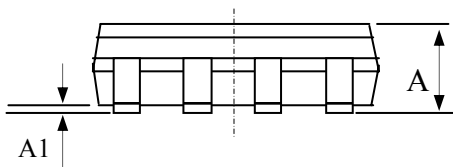
Fig 12. Gate Charge Waveform



Package Outline : SO-8

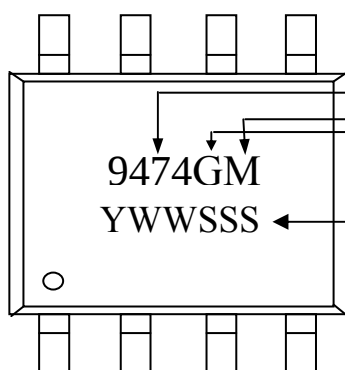


	Millimeters		
SYMBOLS	MIN	NOM	MAX
A	1.35	1.55	1.75
A1	0.10	0.18	0.25
B	0.33	0.41	0.51
C	0.19	0.22	0.25
D	4.80	4.90	5.00
E1	3.80	3.90	4.00
E	5.80	6.15	6.50
L	0.38	0.71	1.27
θ	0	4.00	8.00
e	1.27 TYP		



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

Part Marking Information & Packing : SO-8



Part Number Package Code meet Rohs requirement

9474GM

YWWSSS

Date Code (YWWSSS)

Y : Last Digit Of The Year

WW : Week

SSS : Sequence