



**Advanced Power
Electronics Corp.**

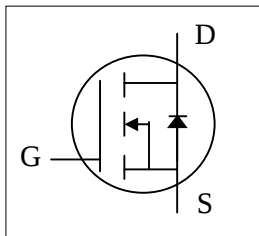
AP25N10GH/J

Pb Free Plating Product

N-CHANNEL ENHANCEMENT MODE

POWER MOSFET

- ▼ Low Gate Charge
- ▼ Single Drive Requirement
- ▼ Surface Mount Package
- ▼ RoHS Compliant

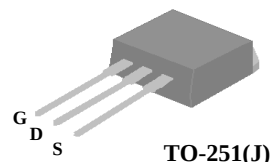
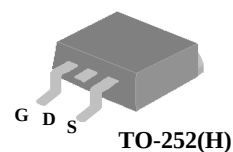


BV_{DSS}	100V
$R_{DS(ON)}$	80m Ω
I_D	23A

Description

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

The TO-252 package is universally preferred for all commercial-industrial surface mount applications and suited for low voltage applications such as DC/DC converters. The through-hole version (AP25N10GJ) are available for low-profile applications.



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	100	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D @ T_C = 25^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ 10\text{V}$	23	A
$I_D @ T_C = 100^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ 10\text{V}$	14.6	A
I_{DM}	Pulsed Drain Current ¹	80	A
$P_D @ T_C = 25^\circ\text{C}$	Total Power Dissipation	96	W
	Linear Derating Factor	0.77	W/ $^\circ\text{C}$
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
Rthj-c	Thermal Resistance Junction-case Max.	1.3	$^\circ\text{C}/\text{W}$
Rthj-a	Thermal Resistance Junction-ambient Max.	110	$^\circ\text{C}/\text{W}$

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	100	-	-	V
ΔBV _{DSS} /ΔT _j	Breakdown Voltage Temperature Coefficient	Reference to 25°C, I _D =1mA	-	0.14	-	V/°C
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =10V, I _D =16A	-	-	80	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 =16A	-	14	-	S
I _{DSS}	Drain-Source Leakage Current (T _j =25°C)	V _{DS} =100V, V _{GS} =0V	-	-	25	uA
	Drain-Source Leakage Current (T _j =150°C)	V _{DS} =80V, V _{GS} =0V	-	-	100	uA
I _{GSS}	Gate-Source Leakage	V _{GS} =±20V	-	-	±100	nA
Q _g	Total Gate Charge ²	I _D =16A	-	19	30	nC
Q _{gs}	Gate-Source Charge	V _{DS} =80V	-	5	-	nC
Q _{gd}	Gate-Drain ("Miller") Charge	V _{GS} =10V	-	6	-	nC
t _{d(on)}	Turn-on Delay Time ²	V _{DD} =50V	-	10	-	ns
t _r	Rise Time	I _D =16A	-	28	-	ns
t _{d(off)}	Turn-off Delay Time	R _G =3.3Ω, V _{GS} =10V	-	17	-	ns
t _f	Fall Time	R _D =3.125Ω	-	2	-	ns
C _{iss}	Input Capacitance	V _{GS} =0V	-	1060	1700	pF
C _{oss}	Output Capacitance	V _{DS} =25V	-	270	-	pF
C _{rss}	Reverse Transfer Capacitance	f=1.0MHz	-	8	-	pF
R _g	Gate Resistance	f=1.0MHz	-	1.5	2.3	Ω

Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V _{SD}	Forward On Voltage ²	I _S =16A, V _{GS} =0V	-	-	1.3	V
t _{rr}	Reverse Recovery Time	I _S =16A, V _{GS} =0V	-	90	-	ns
Q _{rr}	Reverse Recovery Charge	dI/dt=100A/μs	-	380	-	nC

Notes:

- 1.Pulse width limited by Max. junction temperature.
- 2.Pulse width ≤300us , duty cycle ≤2%.

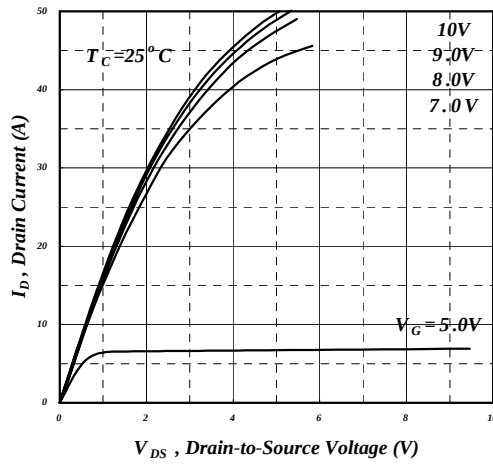


Fig 1. Typical Output Characteristics

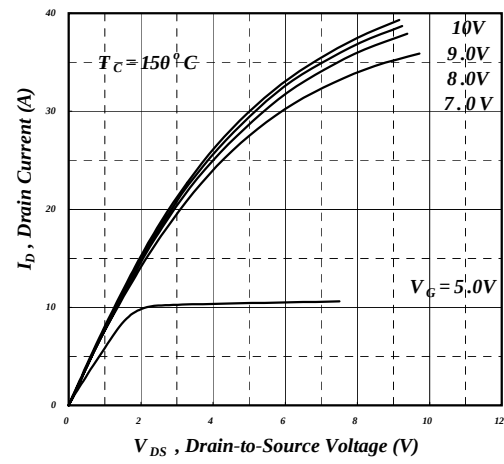


Fig 2. Typical Output Characteristics

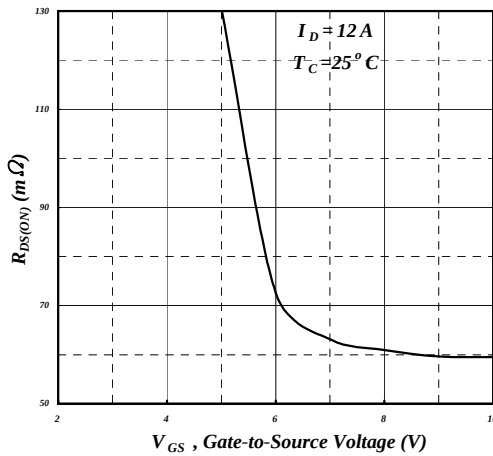


Fig 3. On-Resistance v.s. Gate Voltage

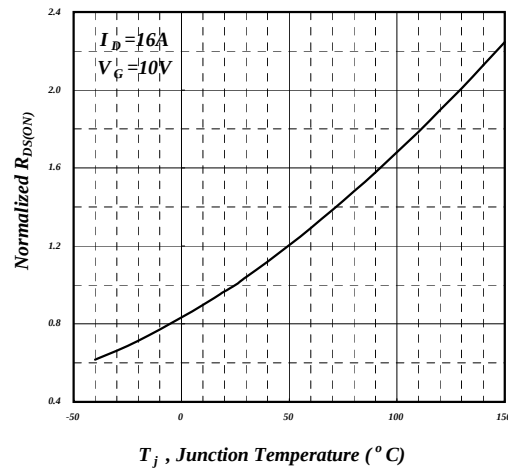


Fig 4. Normalized On-Resistance v.s. Junction Temperature

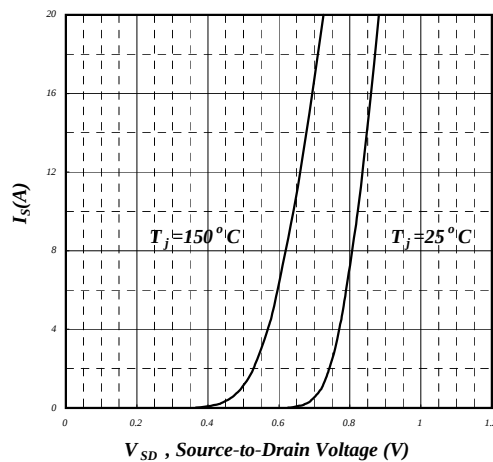


Fig 5. Forward Characteristic of Reverse Diode

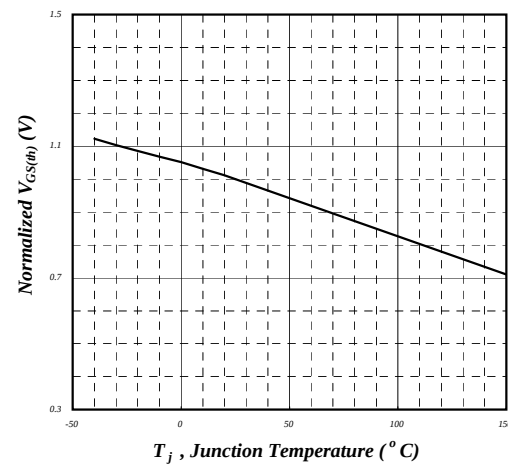


Fig 6. Gate Threshold Voltage v.s. Junction Temperature



AP25N10GH/J

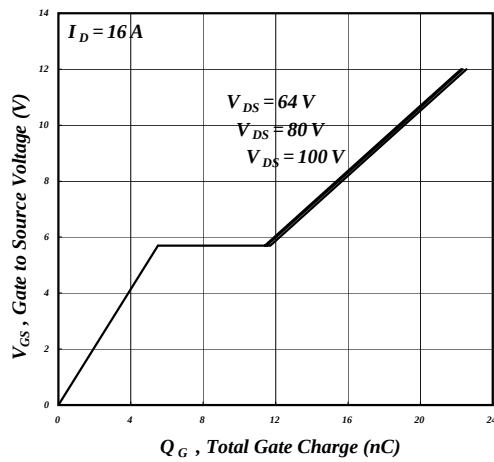


Fig 7. Gate Charge Characteristics

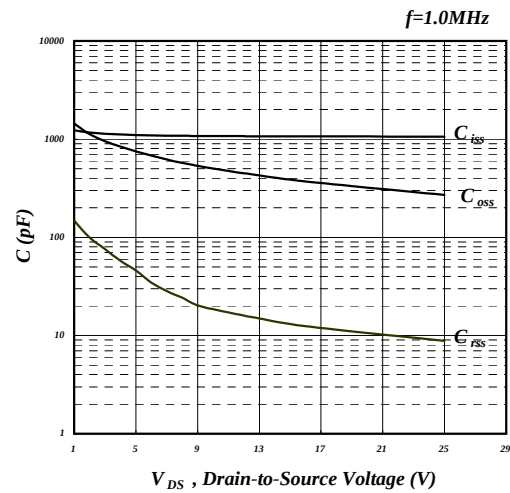


Fig 8. Typical Capacitance Characteristics

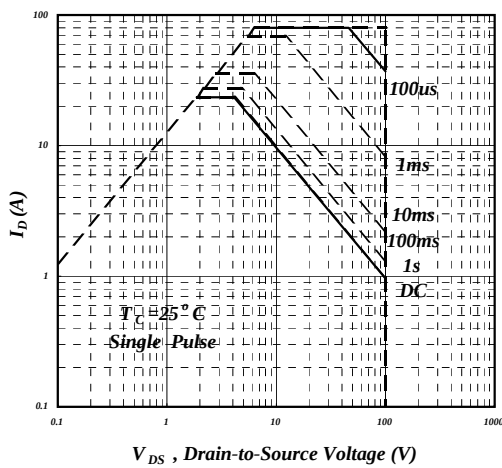


Fig 9. Maximum Safe Operating Area

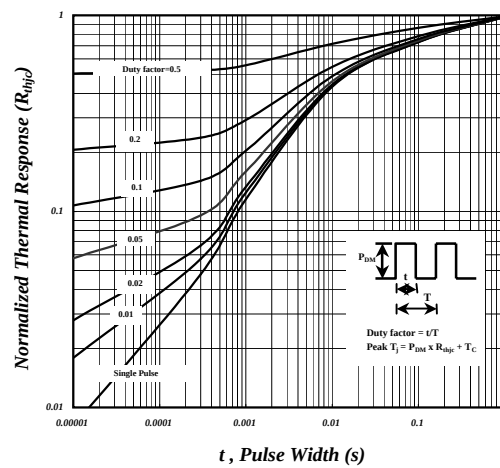


Fig 10. Effective Transient Thermal Impedance

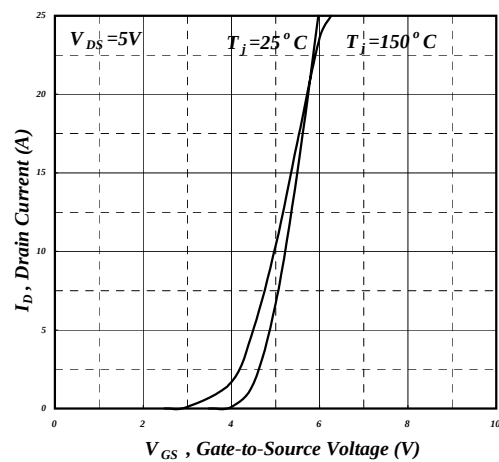


Fig 11. Transfer Characteristics

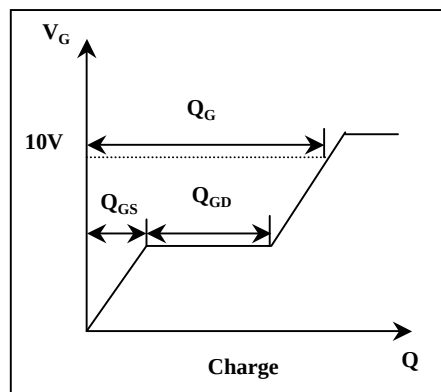
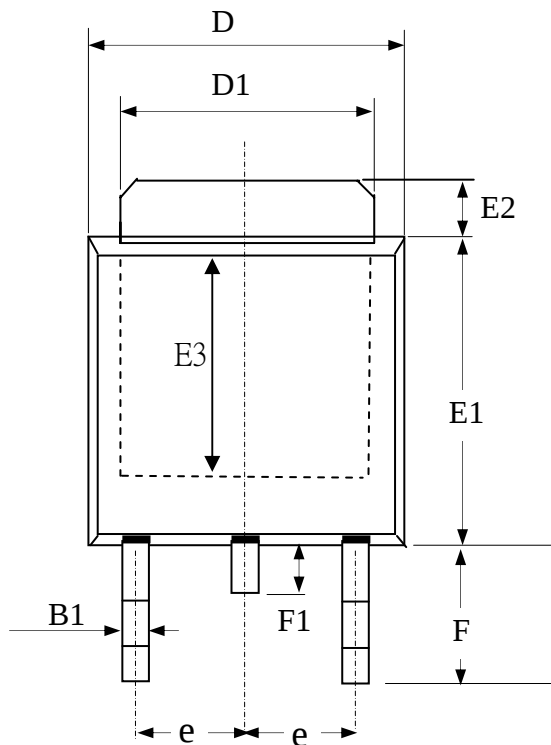


Fig 12. Gate Charge Waveform



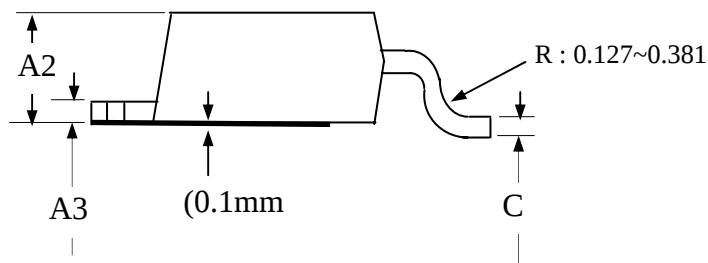
Package Outline : TO-252(低壓)



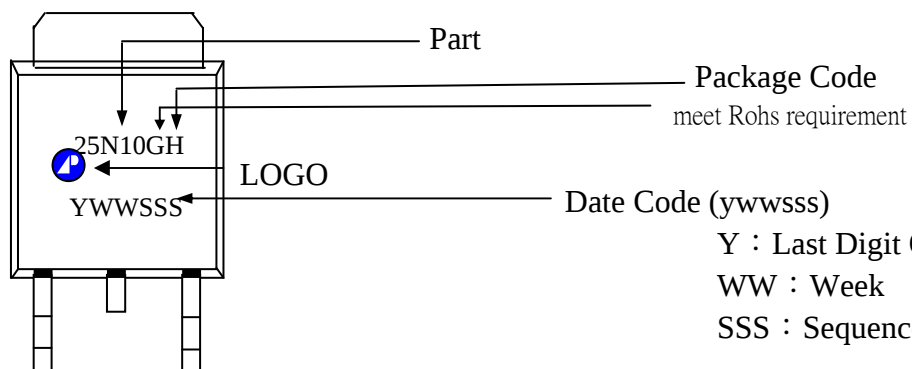
SYMBOLS	Millimeters		
	MIN	NOM	MAX
A2	1.80	2.30	2.80
A3	0.40	0.50	0.60
B1	0.40	0.70	1.00
D	6.00	6.50	7.00
D1	4.80	5.35	5.90
E3	3.50	4.00	4.50
F	2.20	2.63	3.05
F1	0.5	0.85	1.20
E1	5.10	5.70	6.30
E2	0.50	1.10	1.80
e	--	2.30	--
C	0.35	0.50	0.65

1.All Dimensions Are in Millimeters.

2.Dimension Does Not Include Mold Protrusions.



Part Marking Information & Packing : TO-252



Y : Last Digit Of The Year

WW : Week

SSS : Sequence