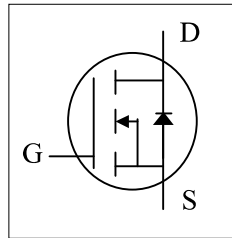


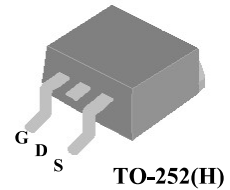
AP30H150K

N-Channel Power MOSFET

- ▼ Simple Drive Requirement
- ▼ TO-252 Compatible
- ▼ Low On-resistance
- ▼ RoHS Compliant & Halogen-Free



BV_{DSS}	30V
$R_{DS(ON)}$	3.1m Ω
I_D	150A



Description

AP30H150K 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.

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

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	+20	V
$I_D@T_C=25^\circ\text{C}$	Drain Current (Chip), $V_{GS} @ 10\text{V}$	150	A
$I_D@T_A=25^\circ\text{C}$	Drain Current, $V_{GS} @ 10\text{V}^3$	100	A
$I_D@T_A=70^\circ\text{C}$	Drain Current, $V_{GS} @ 10\text{V}^3$	75	A
I_{DM}	Pulsed Drain Current ¹	380	A
$P_D@T_C=25^\circ\text{C}$	Total Power Dissipation	62.5	W
$P_D@T_A=25^\circ\text{C}$	Total Power Dissipation	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	Units
Rthj-c	Maximum Thermal Resistance, Junction-case	2.5	$^\circ\text{C}/\text{W}$
Rthj-a	Maximum Thermal Resistance, Junction-ambient ³	25	$^\circ\text{C}/\text{W}$

AP30H150K
N-Channel Power MOSFET
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	30	-	-	V
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =10V, I _D =50A	-	3.1	3.5	mΩ
		V _{GS} =4.5V, I _D =40A	-	4.3	4.9	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250uA	1.2	1.45	2	V
g _{fs}	Forward Transconductance	V _{DS} =10V, I _D =30A	-	75	-	S
I _{DSS}	Drain-Source Leakage Current	V _{DS} =24V, V _{GS} =0V	-	-	10	uA
I _{GSS}	Gate-Source Leakage	V _{GS} =±12V, V _{DS} =0V	-	-	±100	nA
Q _g	Total Gate Charge	I _D =20A	-	34	54	nC
Q _{gs}	Gate-Source Charge	V _{DS} =15V	-	8	-	nC
Q _{gd}	Gate-Drain ("Miller") Charge	V _{GS} =4.5V	-	18	-	nC
t _{d(on)}	Turn-on Delay Time	V _{DS} =15V	-	13	-	ns
t _r	Rise Time	I _D =1A	-	9	-	ns
t _{d(off)}	Turn-off Delay Time	R _G =3.3Ω	-	52	-	ns
t _f	Fall Time	V _{GS} =10V	-	20	-	ns
C _{iss}	Input Capacitance	V _{GS} =0V	-	3350	5360	pF
C _{oss}	Output Capacitance	V _{DS} =15V	-	460	-	pF
C _{rss}	Reverse Transfer Capacitance	f=1.0MHz	-	375	-	pF
R _g	Gate Resistance	f=1.0MHz	-	1.2	2.4	Ω

Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V _{SD}	Forward On Voltage ²	I _S =50A, V _{GS} =0V	-	-	1.2	V
t _{rr}	Reverse Recovery Time	I _S =10A, V _{GS} =0V,	-	32	-	ns
Q _{rr}	Reverse Recovery Charge	dI/dt=100A/μs	-	30	-	nC

Notes:

- 1.Pulse width limited by Max. junction temperature
- 2.Pulse test
- 3.Surface mounted on 1 in² copper pad of FR4 board, t ≤10sec

AP30H150K
N-Channel Power MOSFET

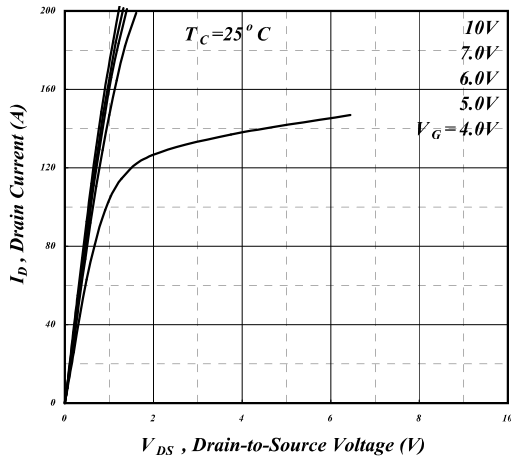


Fig 1. Typical Output Characteristics

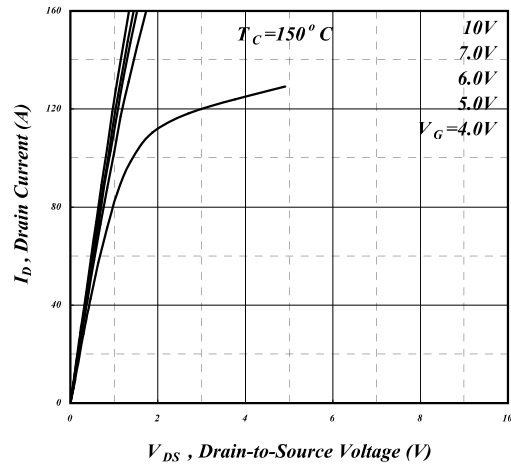


Fig 2. Typical Output Characteristics

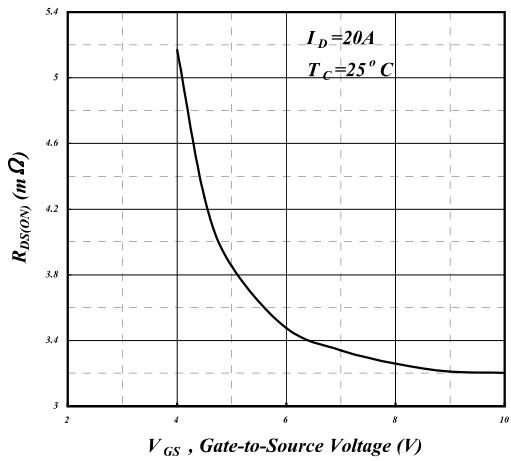


Fig 3. On-Resistance v.s. Gate Voltage

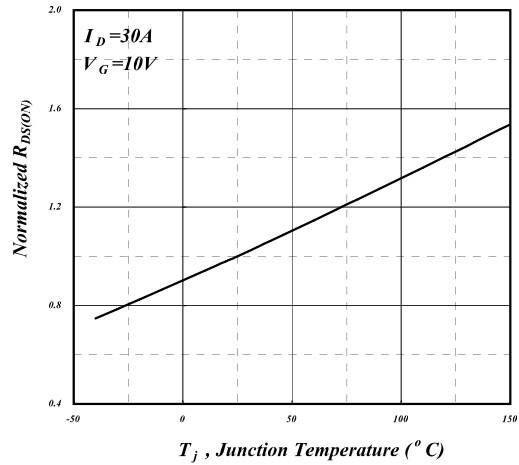


Fig 4. Normalized On-Resistance v.s. Junction Temperature

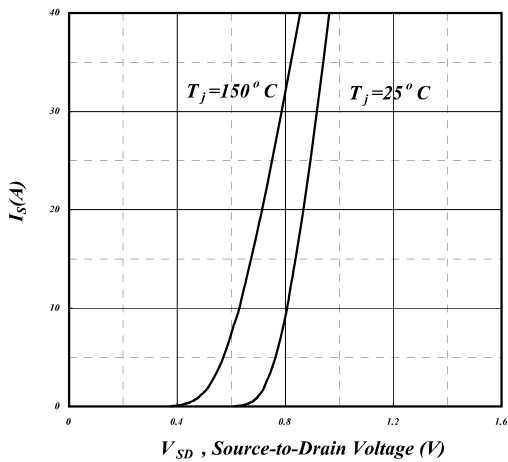


Fig 5. Forward Characteristic of Reverse Diode

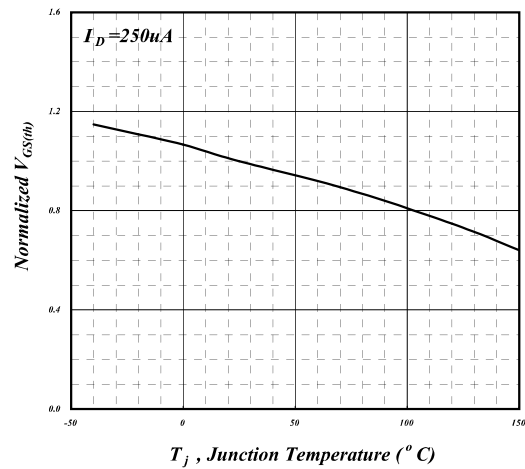


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

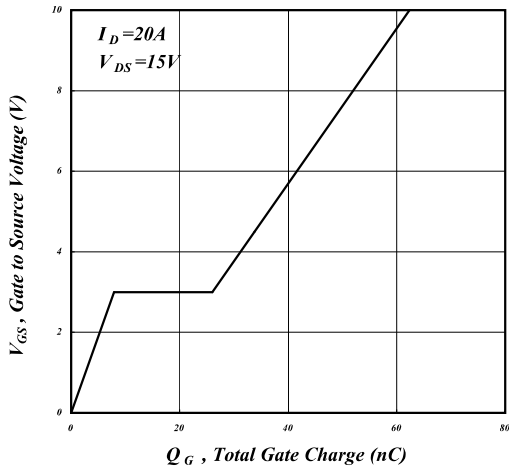


Fig 7. Gate Charge Characteristics

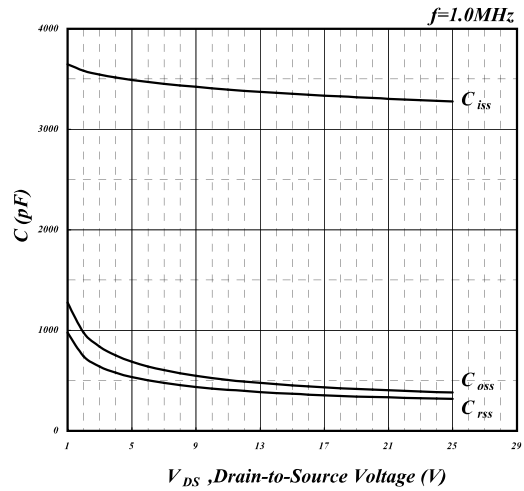


Fig 8. Typical Capacitance Characteristics

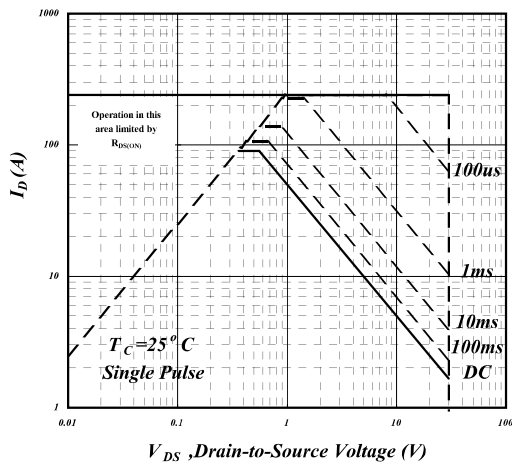


Fig 9. Maximum Safe Operating Area

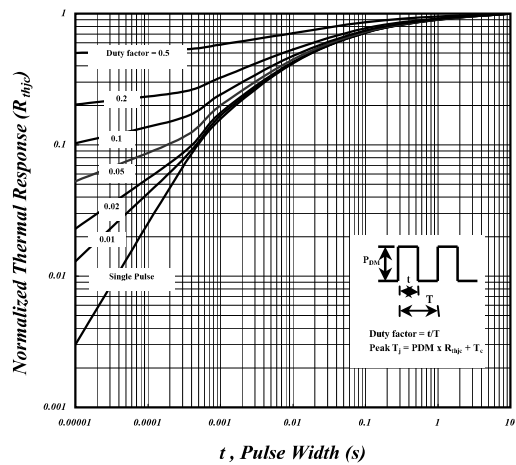


Fig 10. Effective Transient Thermal Impedance

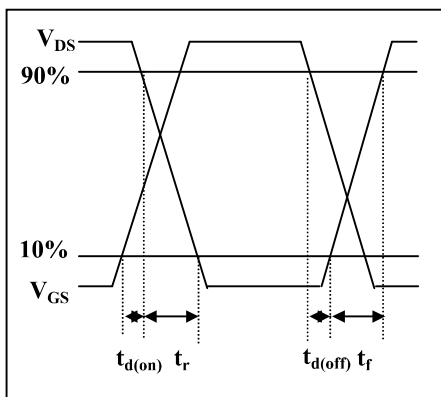


Fig 11. Switching Time Waveform

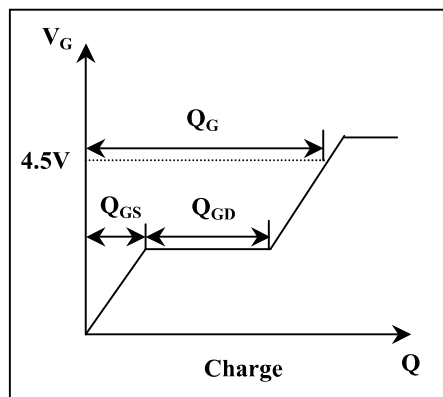


Fig 12. Gate Charge Waveform