

AP4435GYT-HF

Halogen-Free Product

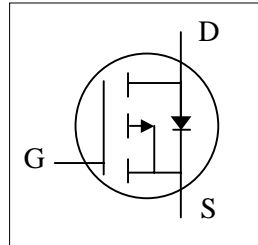


**Advanced Power
Electronics Corp.**

P-CHANNEL ENHANCEMENT MODE

POWER MOSFET

- ▼ Simple Drive Requirement
- ▼ Small Size & Lower Profile
- ▼ RoHS Compliant & Halogen-Free

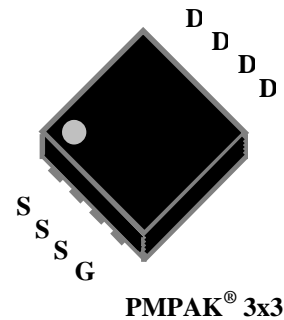


BV_{DSS}	-30V
$R_{DS(ON)}$	21m Ω
I_D	-11A

Description

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 PMPAK[®] 3x3 package is special for DC-DC converters application and lower 1.0mm profile with backside heat sink.



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-30	V
V_{GS}	Gate-Source Voltage	+25	V
$I_D@T_A=25^\circ\text{C}$	Continuous Drain Current ³	-11	A
$I_D@T_A=70^\circ\text{C}$	Continuous Drain Current ³	-8.7	A
I_{DM}	Pulsed Drain Current ¹	-40	A
$P_D@T_A=25^\circ\text{C}$	Total Power Dissipation	3.57	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-c	Maximum Thermal Resistance, Junction-case	6	$^\circ\text{C}/\text{W}$
Rthj-a	Maximum Thermal Resistance, Junction-ambient ³	35	$^\circ\text{C}/\text{W}$



AP4435GYT-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	-30	-	-	V
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =-10V, I _D =-10A	-	17	21	mΩ
		V _{GS} =-4.5V, I _D =-6A	-	26	36	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250uA	-1	-1.95	-3	V
g _{fs}	Forward Transconductance	V _{DS} =-10V, I _D =-6A	-	15	-	S
I _{DSS}	Drain-Source Leakage Current	V _{DS} =-30V, V _{GS} =0V	-	-	-10	uA
I _{GSS}	Gate-Source Leakage	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
Q _g	Total Gate Charge ²	I _D =-6A	-	15	24	nC
Q _{gs}	Gate-Source Charge	V _{DS} =-15V	-	3	-	nC
Q _{gd}	Gate-Drain ("Miller") Charge	V _{GS} =-4.5V	-	8	-	nC
t _{d(on)}	Turn-on Delay Time ²	V _{DS} =-15V	-	12	-	ns
t _r	Rise Time	I _D =-1A	-	7.5	-	ns
t _{d(off)}	Turn-off Delay Time	R _G =3.3Ω, V _{GS} =-10V	-	39	-	ns
t _f	Fall Time	R _D =15Ω	-	21	-	ns
C _{iss}	Input Capacitance	V _{GS} =0V	-	1260	2000	pF
C _{oss}	Output Capacitance	V _{DS} =-15V	-	245	-	pF
C _{rss}	Reverse Transfer Capacitance	f=1.0MHz	-	210	-	pF
R _g	Gate Resistance	f=1.0MHz	-	5.3	10.6	Ω

Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V _{SD}	Forward On Voltage ²	I _S =-2.9A, V _{GS} =0V	-	-	1.2	V
t _{rr}	Reverse Recovery Time ²	I _S =-6A, V _{GS} =0V,	-	19	-	ns
Q _{rr}	Reverse Recovery Charge	dI/dt=100A/μs	-	10	-	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, 85°C at steady state.

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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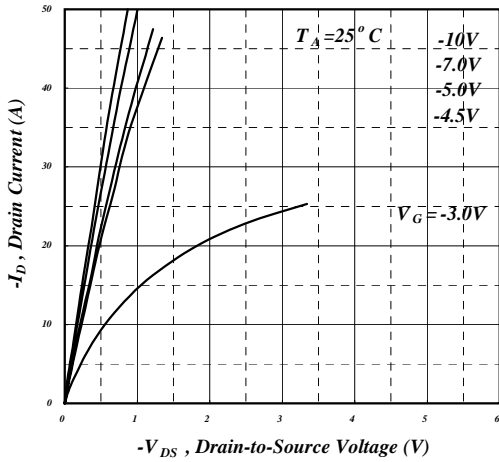


Fig 1. Typical Output Characteristics

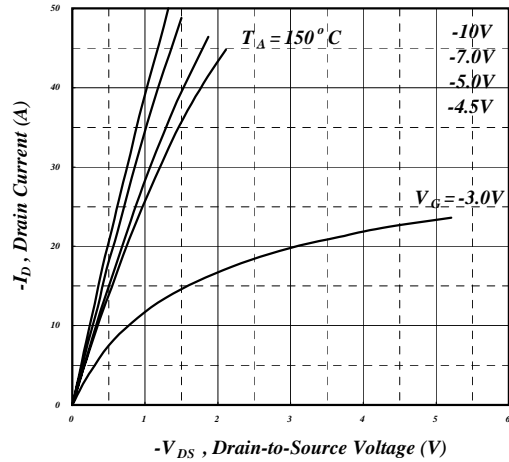


Fig 2. Typical Output Characteristics

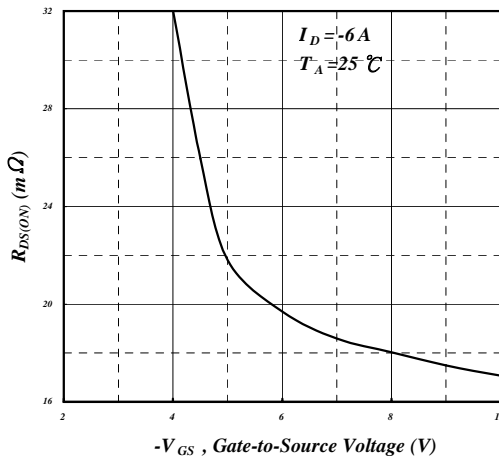


Fig 3. On-Resistance v.s. Gate Voltage

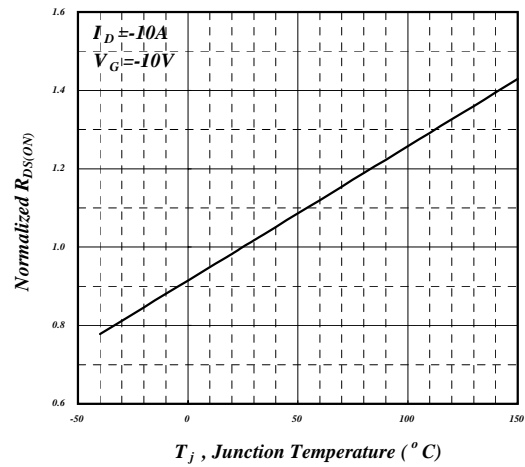


Fig 4. Normalized On-Resistance v.s. Junction Temperature

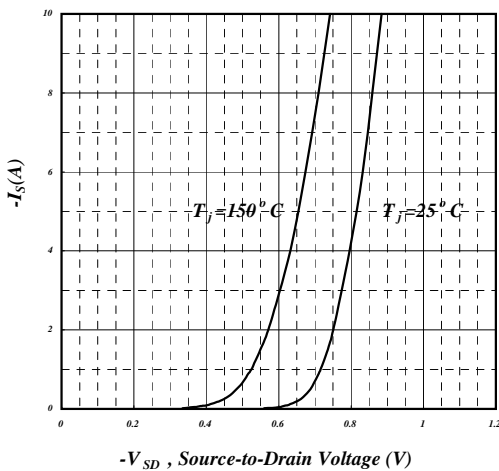


Fig 5. Forward Characteristic of Reverse Diode

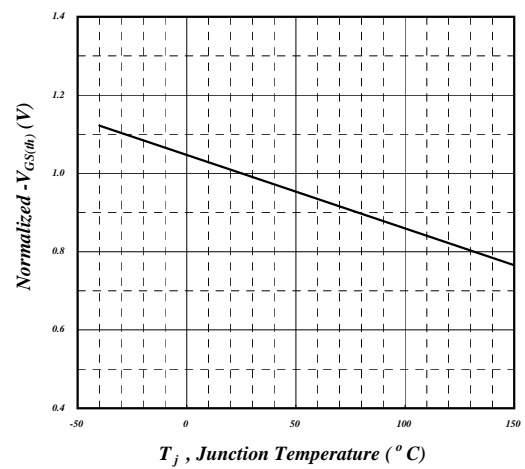


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

