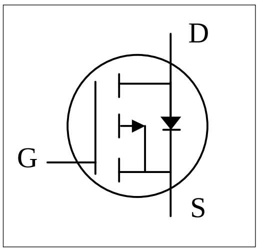
AP2611GYT-HF

Halogen-Free Product

Advanced Power Electronics Corp.

P-CHANNEL ENHANCEMENT MODE POWER MOSFET

- ▼ **Capable of 2.5V Gate Drive**
- ▼ **Small Size & Lower Profile**
- ▼ **RoHS Compliant & Halogen-Free**

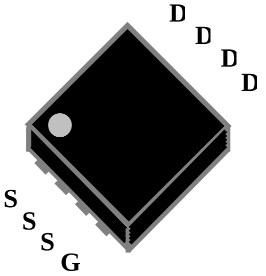


BV_{DSS}	-20V
$R_{DS(ON)}$	9mΩ
I_D	-15.4A

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.



PMPAK® 3x3

Absolute Maximum Ratings@T_j=25°C(unless otherwise specified)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-20	V
V_{GS}	Gate-Source Voltage	±12	V
I_D@T_A=25℃	Drain Current[3], V_{GS} @ 4.5V	-15.4	A
I_D@T_A=70℃	Drain Current[3], V_{GS} @ 4.5V	-12.3	A
I_{DM}	Pulsed Drain Current[1]	-50	A
P_D@T_A=25℃	Total Power Dissipation	3.12	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃

Thermal Data

Symbol	Parameter	Value	Unit
Rthj-c	Maximum Thermal Resistance, Junction-case	5	℃/W
Rthj-a	Maximum Thermal Resistance, Junction-ambient[3]	40	℃/W

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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	-20	-	-	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance[2]	V_{GS}=-10V, I_D=-13A	-	6.4	8	mΩ
		V_{GS}=-4.5V, I_D=-10A	-	7.3	9	mΩ
		V_{GS}=-2.5V, I_D=-6A	-	9.5	12	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=-250uA	-0.3	-0.6	-1.2	V
g_{fs}	Forward Transconductance	V_{DS}=-5V, I_D=-10A	-	41	-	S
I_{DSS}	Drain-Source Leakage Current	V_{DS}=-16V, 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=-10A	-	50	80	nC
Q_{gs}	Gate-Source Charge	V_{DS}=-10V	-	4	-	nC
Q_{gd}	Gate-Drain ("Miller") Charge	V_{GS}=-4.5V	-	16	-	nC
$t_{d(on)}$	Turn-on Delay Time	V_{DS}=-10V	-	15	-	ns
t_r	Rise Time	I_D=-1A	-	22	-	ns
$t_{d(off)}$	Turn-off Delay Time	R_G=3.3Ω	-	260	-	ns
t_f	Fall Time	V_{GS}=-5V	-	140	-	ns
C_{iss}	Input Capacitance	V_{GS}=0V	-	4500	7200	pF
C_{oss}	Output Capacitance	V_{DS}=-10V	-	615	-	pF
C_{rss}	Reverse Transfer Capacitance	f=1.0MHz	-	610	-	pF
R_g	Gate Resistance	f=1.0MHz	-	13	-	Ω

Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V_{SD}	Forward On Voltage[2]	I_S=-2.6A, V_{GS}=0V	-	-	-1.2	V
t_{rr}	Reverse Recovery Time	I_S=-10A, V_{GS}=0V,	-	80	-	ns
Q_{rr}	Reverse Recovery Charge	dI/dt=100A/µs	-	50	-	nC

Notes:

1.Pulse width limited by Max. junction temperature.

2.Pulse test

3.Surface mounted on 1 in^2 2oz copper pad of FR4 board, t ≤10sec ; 210°C/W when mounted on min. copper pad.

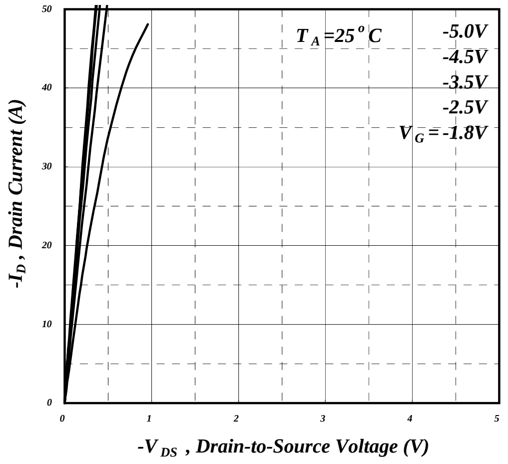


Fig 1. Typical Output Characteristics

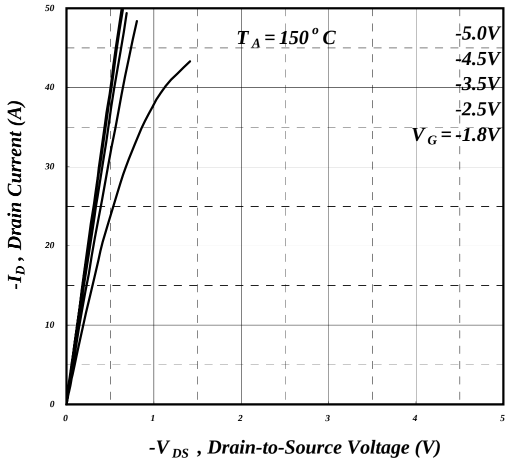


Fig 2. Typical Output Characteristics

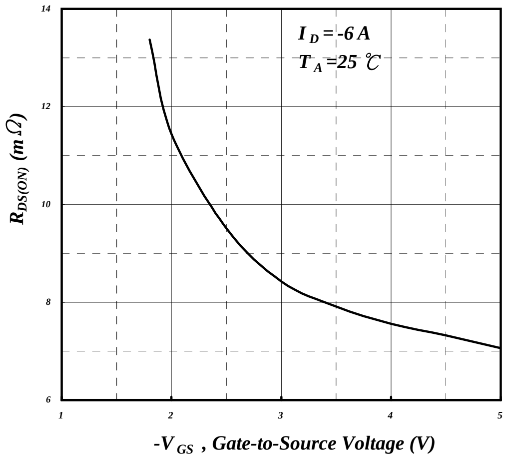


Fig 3. On-Resistance v.s. Gate Voltage

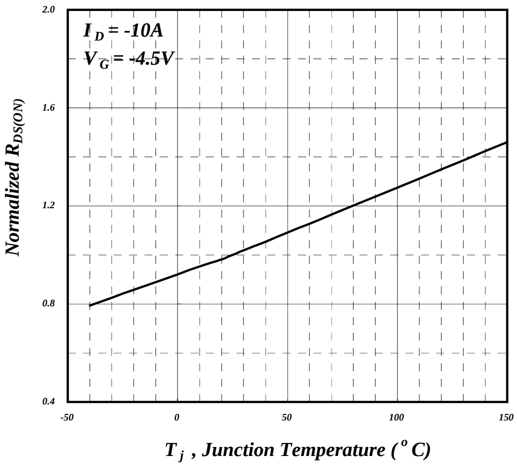


Fig 4. Normalized On-Resistance v.s. Junction Temperature

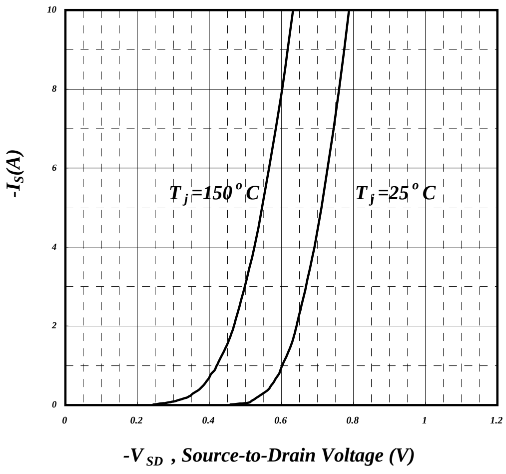


Fig 5. Forward Characteristic of Reverse Diode

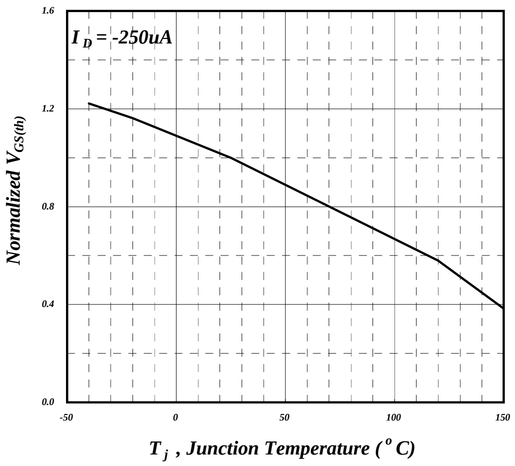


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

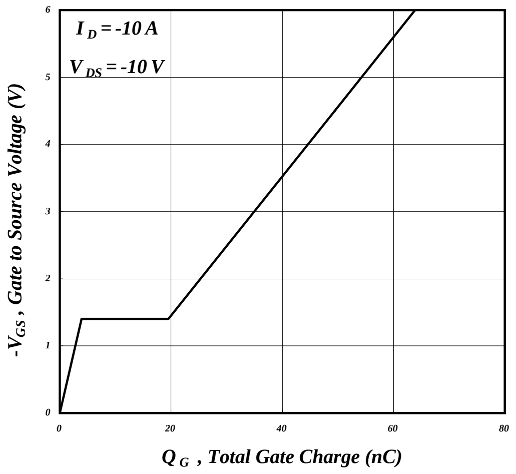


Fig 7. Gate Charge Characteristics

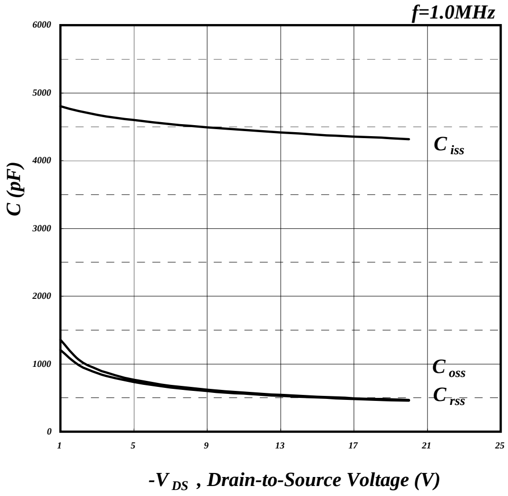


Fig 8. Typical Capacitance Characteristics

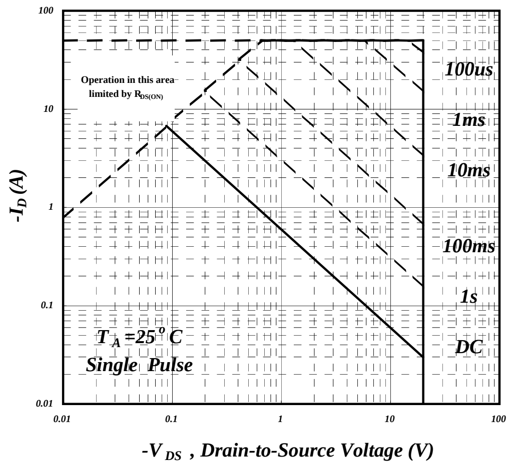


Fig 9. Maximum Safe Operating Area

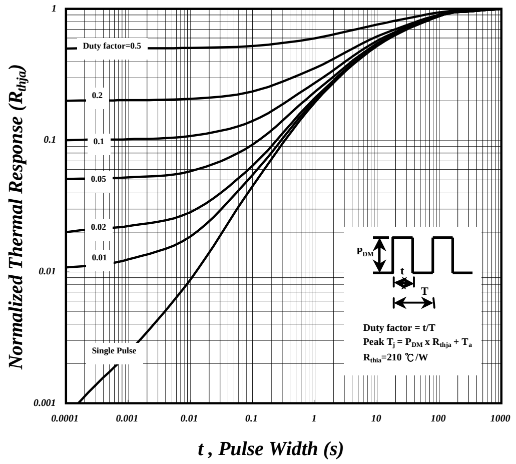


Fig 10. Effective Transient Thermal Impedance

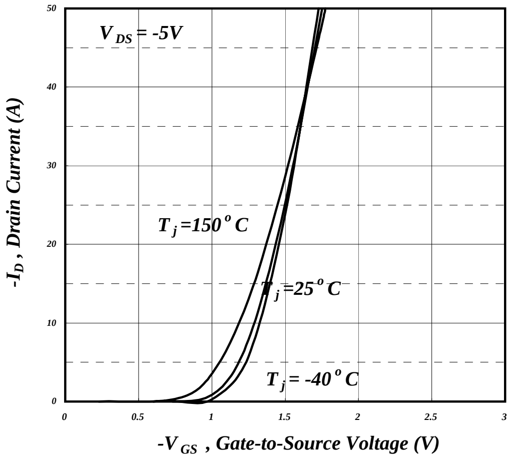


Fig 11. Transfer Characteristics

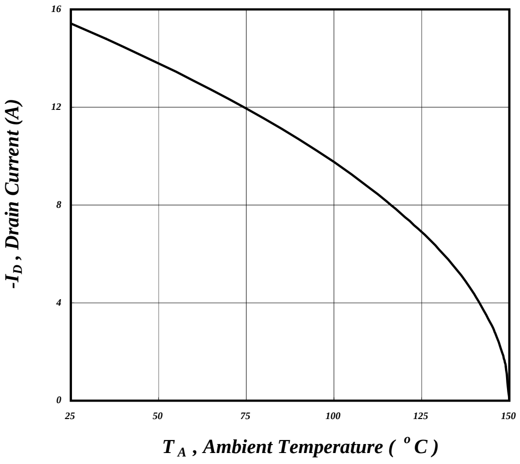
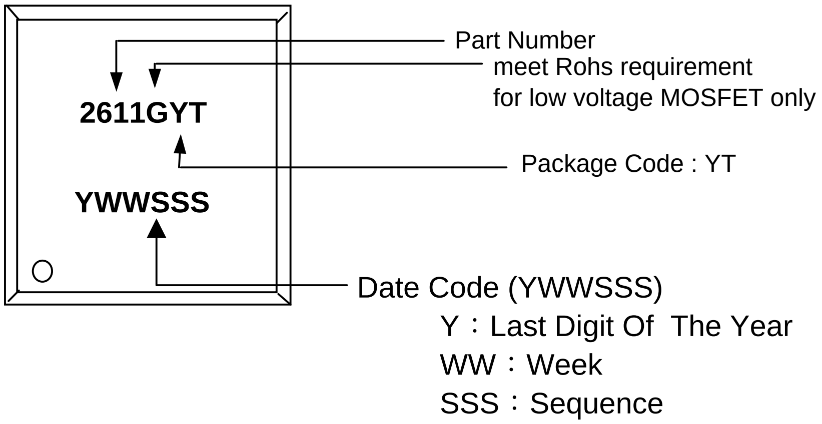


Fig 12. Drain Current v.s. Ambient Temperature

MARKING INFORMATION



Part Number
meet Rohs requirement
for low voltage MOSFET only

Package Code : YT

Date Code (YWWSSS)
Y：Last Digit Of The Year
WW：Week
SSS：Sequence