

Advanced Power Electronics Corp.

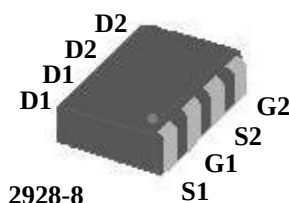
AP2426GEY

Pb Free Plating Product

N-CHANNEL ENHANCEMENT MODE

POWER MOSFET

- ▼ Capable of 2.5V gate drive
- ▼ Lower on-resistance
- ▼ Surface mount package
- ▼ RoHS compliant

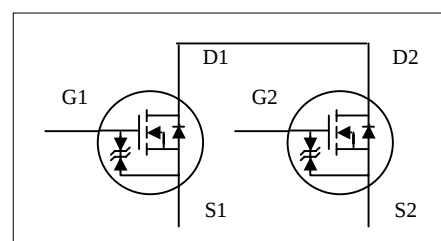


BV_{DSS}	20V
$R_{DS(ON)}$	24m Ω
I_D	6.3A

Description

Advanced Power MOSFETs utilized advanced processing techniques to achieve the lowest possible on-resistance, extremely efficient and cost-effectiveness device.

The 2928-8 J-lead package provides good on-resistance performance and space saving like TSOP-6.



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	20	V
V_{GS}	Gate-Source Voltage	± 5	V
$I_D @ T_A = 25^\circ\text{C}$	Continuous Drain Current ³	6.3	A
$I_D @ T_A = 70^\circ\text{C}$	Continuous Drain Current ³	5.0	A
I_{DM}	Pulsed Drain Current ¹	20	A
$P_D @ T_A = 25^\circ\text{C}$	Total Power Dissipation	1.39	W
	Linear Derating Factor	0.01	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	Unit
R_{thj-a}	Thermal Resistance Junction-ambient ³	Max. 90	$^\circ\text{C}/\text{W}$

AP2426GEY

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
ΔBV _{DSS} /ΔT _j	Breakdown Voltage Temperature Coefficient	Reference to 25°C, I _D =1mA	-	0.01	-	V/°C
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =4.5V, I _D =6A	-	-	24	mΩ
		V _{GS} =2.5V, I _D =4A	-	-	32	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250uA	0.5	-	1.2	V
g _{fs}	Forward Transconductance	V _{DS} =5V, I _D =6A	-	16	-	S
I _{DSS}	Drain-Source Leakage Current (T _j =25°C)	V _{DS} =20V, V _{GS} =0V	-	-	1	uA
	Drain-Source Leakage Current (T _j =70°C)	V _{DS} =16V, V _{GS} =0V	-	-	10	uA
I _{GSS}	Gate-Source Leakage	V _{GS} =±5V	-	-	±30	uA
Q _g	Total Gate Charge ²	I _D =6A	-	10	16	nC
Q _{gs}	Gate-Source Charge	V _{DS} =16V	-	1.6	-	nC
Q _{gd}	Gate-Drain ("Miller") Charge	V _{GS} =4.5V	-	4	-	nC
t _{d(on)}	Turn-on Delay Time ²	V _{DS} =10V	-	9	-	ns
t _r	Rise Time	I _D =1A	-	11	-	ns
t _{d(off)}	Turn-off Delay Time	R _G =3.3Ω, V _{GS} =5V	-	24	-	ns
t _f	Fall Time	R _D =10Ω	-	6	-	ns
C _{iss}	Input Capacitance	V _{GS} =0V	-	715	1150	pF
C _{oss}	Output Capacitance	V _{DS} =20V	-	300	-	pF
C _{rss}	Reverse Transfer Capacitance	f=1.0MHz	-	100	-	pF
R _g	Gate Resistance	f=1.0MHz	-	2.3	3.5	Ω

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Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V _{SD}	Forward On Voltage ²	I _S =1.1A, V _{GS} =0V	-	-	1.3	V
t _{rr}	Reverse Recovery Time	I _S =6A, V _{GS} =0V,	-	24	-	ns
Q _{rr}	Reverse Recovery Charge	dI/dt=100A/μs	-	15	-	nC

Notes:

- 1.Pulse width limited by Max. junction temperature.
- 2.Pulse width ≤300us , duty cycle ≤2%.
- 3.Surface mounted on FR4 board , t ≤5sec ; 180°C/W at steady state.



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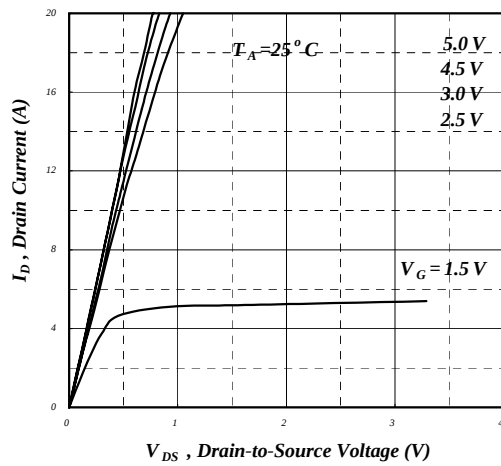


Fig 1. Typical Output Characteristics

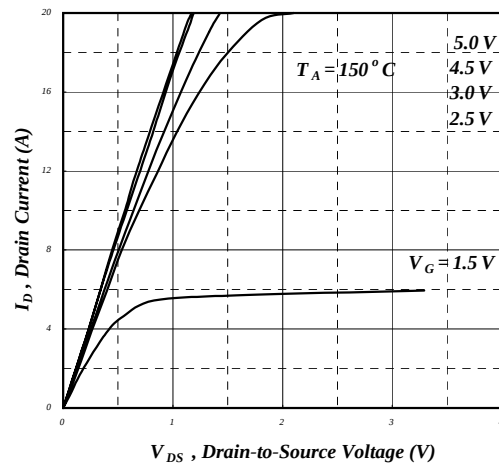


Fig 2. Typical Output Characteristics

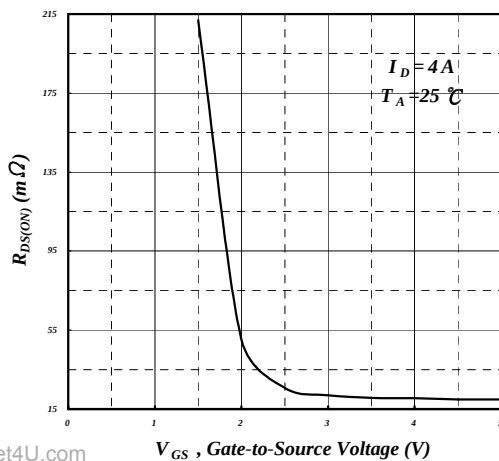


Fig 3. On-Resistance v.s. Gate Voltage

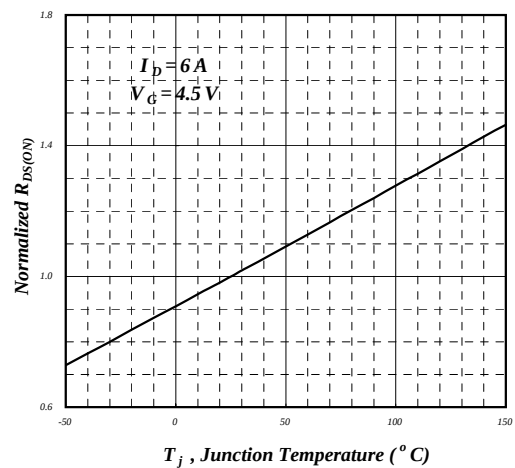


Fig 4. Normalized On-Resistance v.s. Junction Temperature

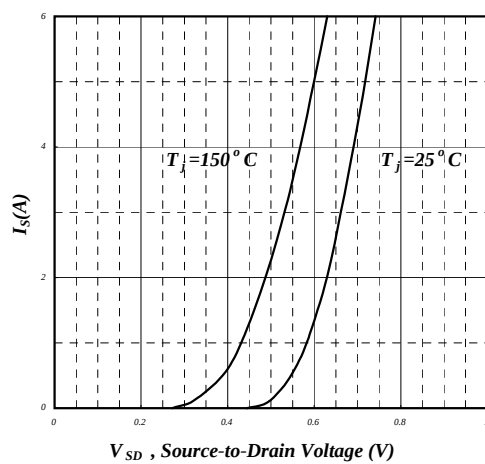


Fig 5. Forward Characteristic of Reverse Diode

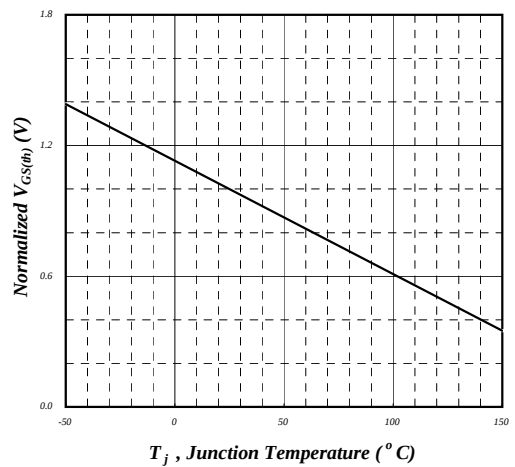


Fig 6. Gate Threshold Voltage v.s. Junction Temperature



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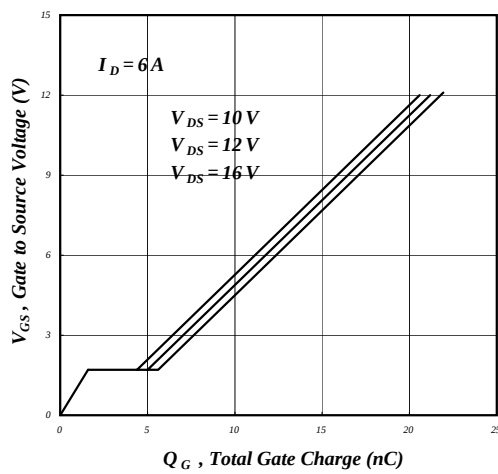


Fig 7. Gate Charge Characteristics

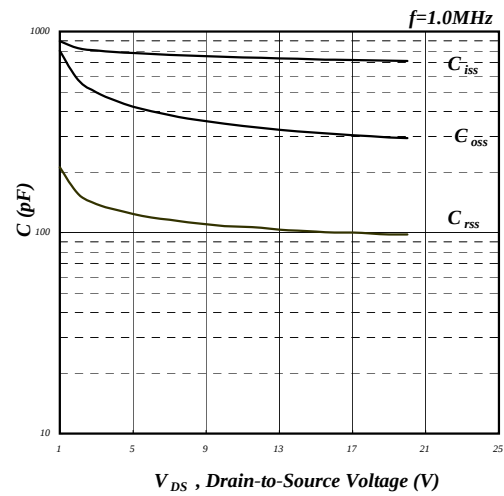
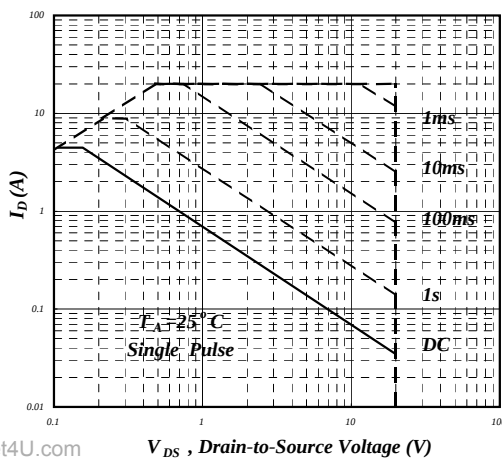


Fig 8. Typical Capacitance Characteristics



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Fig 9. Maximum Safe Operating Area

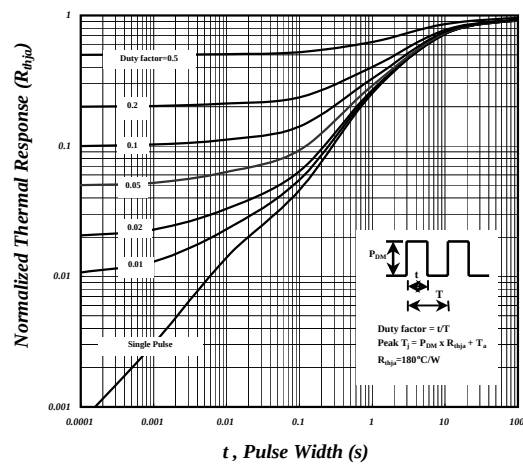


Fig 10. Effective Transient Thermal Impedance

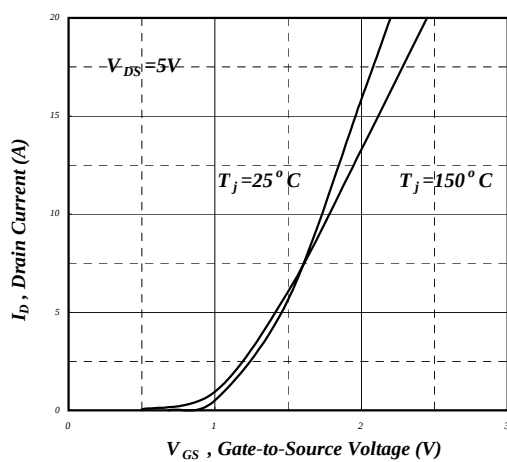


Fig 11. Transfer Characteristics

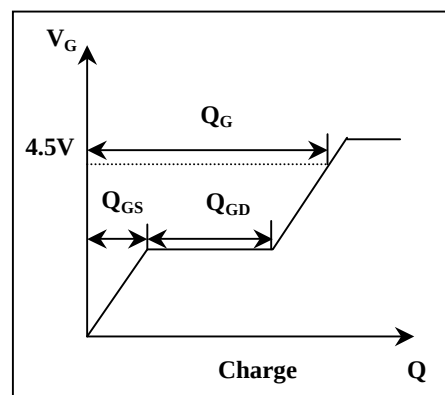


Fig 12. Gate Charge Waveform