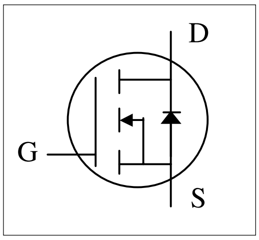
AP2762I-A

RoHS-compliant Product

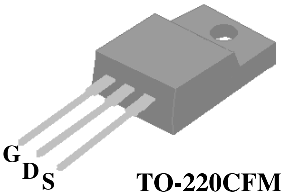
Advanced Power Electronics Corp.

N-CHANNEL ENHANCEMENT MODE POWER MOSFET

- ▼ **100% Avalanche Test**
- ▼ **Fast Switching Characteristics**
- ▼ **Simple Drive Requirement**



BV_{DSS}	650V
$R_{DS(ON)}$	1.4Ω
I_D	7A



TO-220CFM(I)

Description

AP2762 series are specially designed as main switching devices for universal 90~265VAC off-line AC/DC converter applications.

TO-220CFM type provide high blocking voltage to overcome voltage surge and sag in the toughest power system with the best combination of fast switching, ruggedized design and cost-effectiveness.

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	650	V
V_{GS}	Gate-Source Voltage	±30	V
$I_D@T_C=25℃$	Continuous Drain Current, V_{GS} @ 10V	7	A
I_{DM}	Pulsed Drain Current[1]	24	A
$P_D@T_C=25℃$	Total Power Dissipation	33	W
E_{AS}	Single Pulse Avalanche Energy[2]	18	mJ
I_{AR}	Avalanche Current	6	A
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	3.8	℃/W
Rthj-a	Maximum Thermal Resistance, Junction-ambient	65	℃/W

Electrical Characteristics@T_j=25^{o}C(unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=1mA	650	-	-	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance^3	V_{GS}=10V, I_D=3A	-	-	1.4	Ω
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250uA	2	-	4	V
g_{fs}	Forward Transconductance	V_{DS}=10V, I_D=4A	-	3.5	-	S
I_{DSS}	Drain-Source Leakage Current	V_{DS}=480V, V_{GS}=0V	-	-	100	uA
I_{GSS}	Gate-Source Leakage	V_{GS}=±30V	-	-	±100	nA
Q_g	Total Gate Charge^3	I_D=6A	-	31	50	nC
Q_{gs}	Gate-Source Charge	V_{DS}=200V	-	7	-	nC
Q_{gd}	Gate-Drain ("Miller") Charge	V_{GS}=10V	-	13	-	nC
$t_{d(on)}$	Turn-on Delay Time^3	V_{DD}=200V	-	33	-	ns
t_r	Rise Time	I_D=3A	-	29	-	ns
$t_{d(off)}$	Turn-off Delay Time	R_G=50Ω,V_{GS}=10V	-	186	-	ns
t_f	Fall Time	R_D=67Ω	-	46	-	ns
C_{iss}	Input Capacitance	V_{GS}=0V	-	1330	2130	pF
C_{oss}	Output Capacitance	V_{DS}=30V	-	100	-	pF
C_{rss}	Reverse Transfer Capacitance	f=1.0MHz	-	8	-	pF

Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V_{SD}	Forward On Voltage^3	I_S=6A, V_{GS}=0V	-	-	1.5	V
t_{rr}	Reverse Recovery Time^3	I_S=6A, V_{GS}=0V,	-	475	-	ns
Q_{rr}	Reverse Recovery Charge	dI/dt=100A/µs	-	6.4	-	uC

Notes:

1.Pulse width limited by Max. junction temperature.

2.Starting T_j=25^{o}C , V_{DD}=50V , L=1mH , R_G=25Ω

3.Pulse test

THIS PRODUCT IS AN ELECTROSTATIC SENSITIVE, PLEASE HANDLE WITH CAUTION.

THIS PRODUCT HAS BEEN QUALIFIED FOR CONSUMER MARKET. APPLICATIONS OR USES AS CRITERIAL COMPONENT IN LIFE SUPPORT DEVICE OR SYSTEM ARE NOT AUTHORIZED.

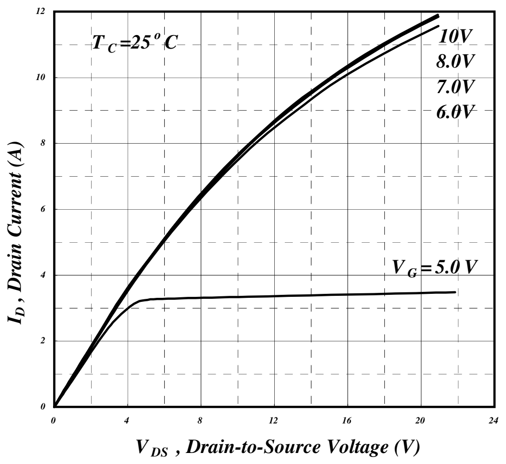


Fig 1. Typical Output Characteristics

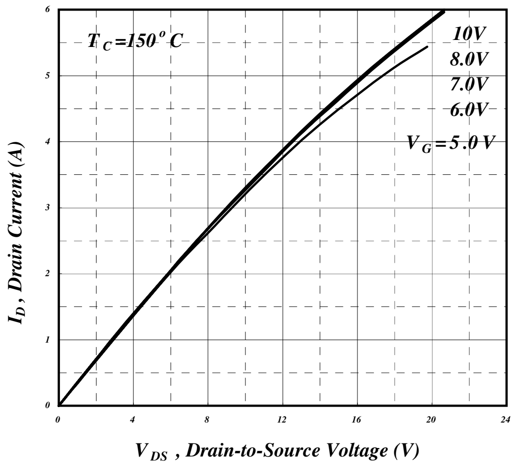


Fig 2. Typical Output Characteristics

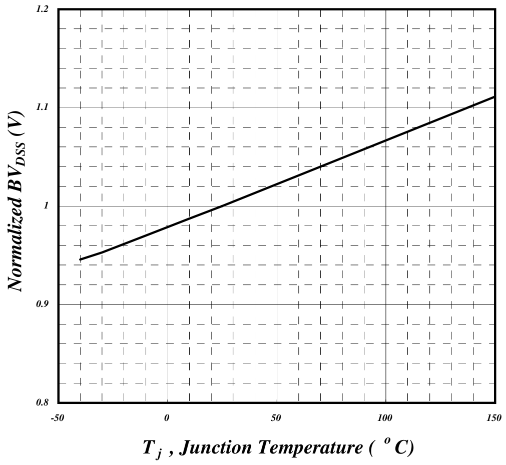


Fig 3. Normalized BV_{DSS} v.s. Junction Temperature

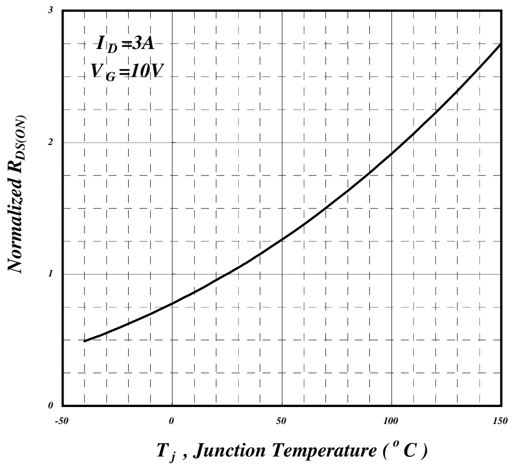


Fig 4. Normalized On-Resistance v.s. Junction Temperature

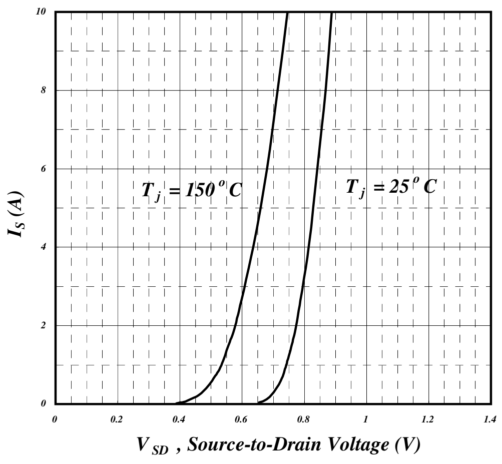


Fig 5. Forward Characteristic of Reverse Diode

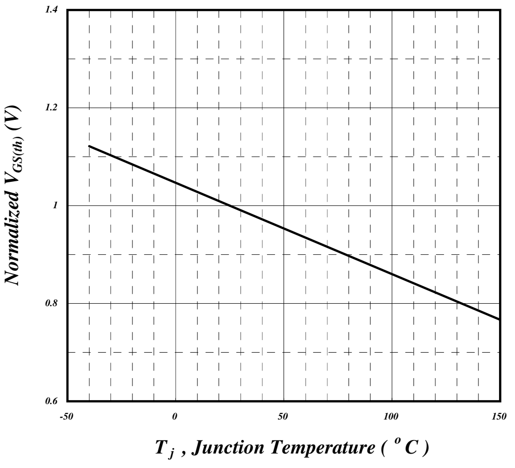


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

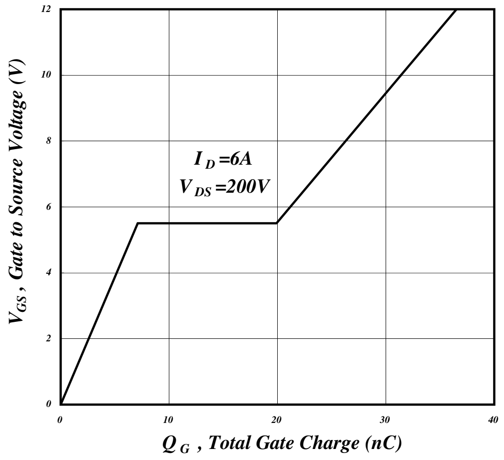


Fig 7. Gate Charge Characteristics

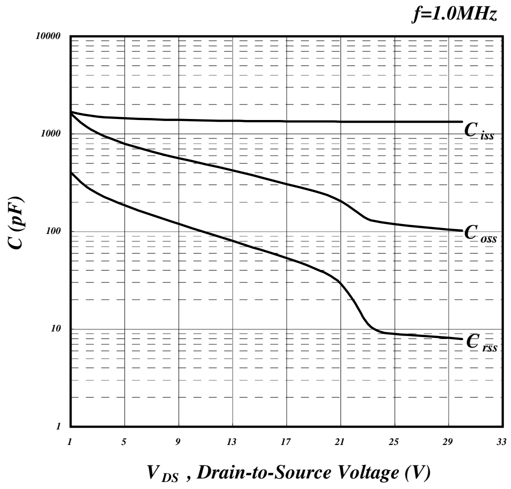


Fig 8. Typical Capacitance Characteristics

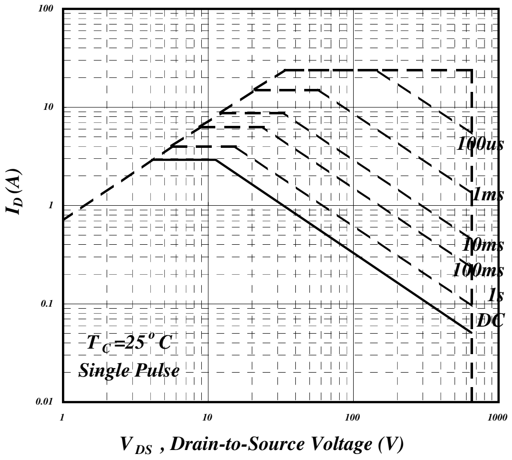


Fig 9. Maximum Safe Operating Area

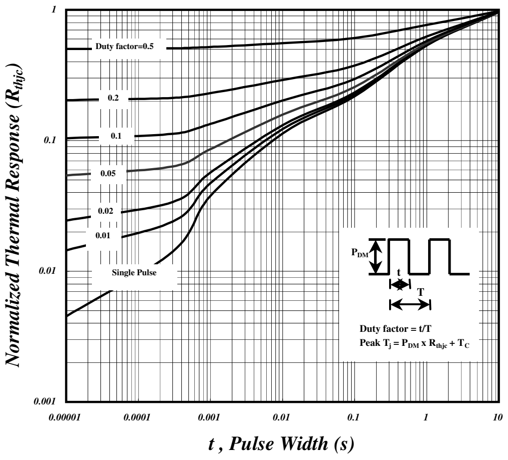
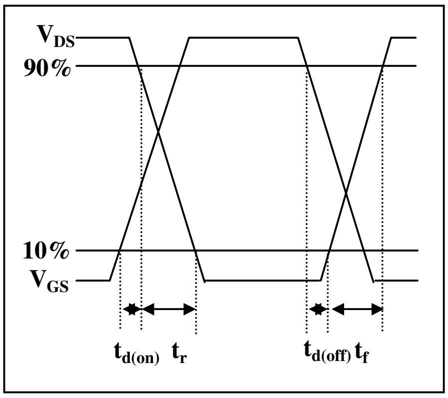


Fig 10. Effective Transient Thermal Impedance



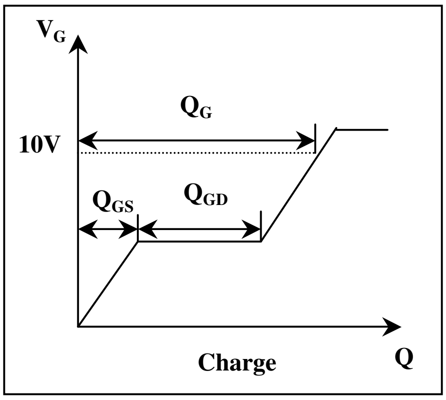
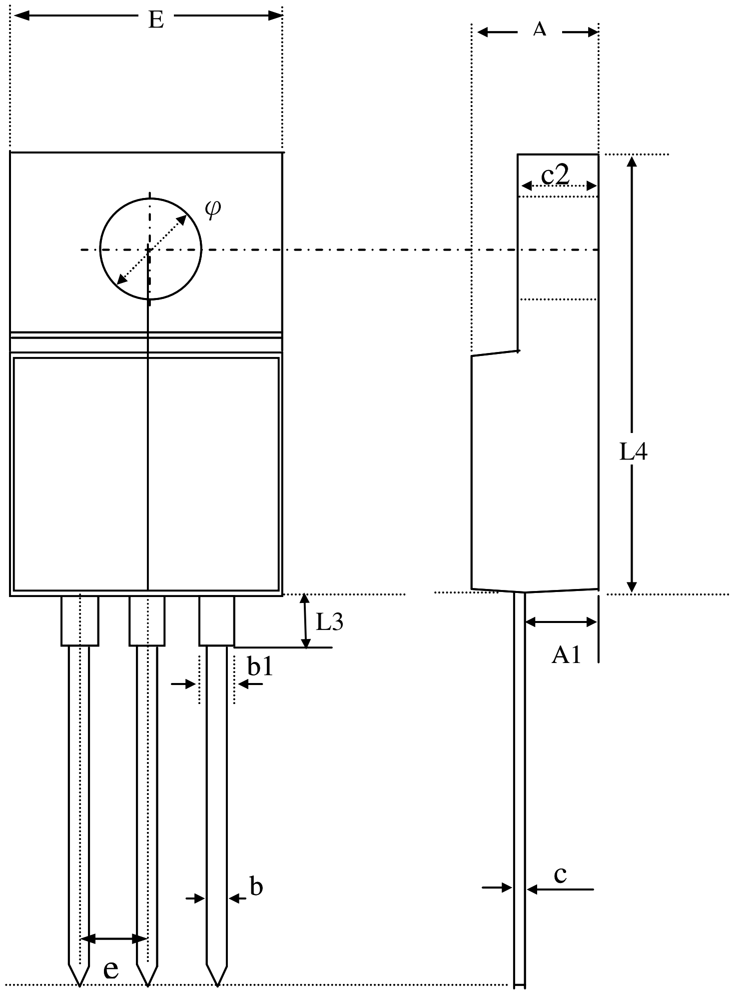


Fig 11. Switching Time Waveform

Fig 12. Gate Charge Waveform

Package Outline : TO-220CFM

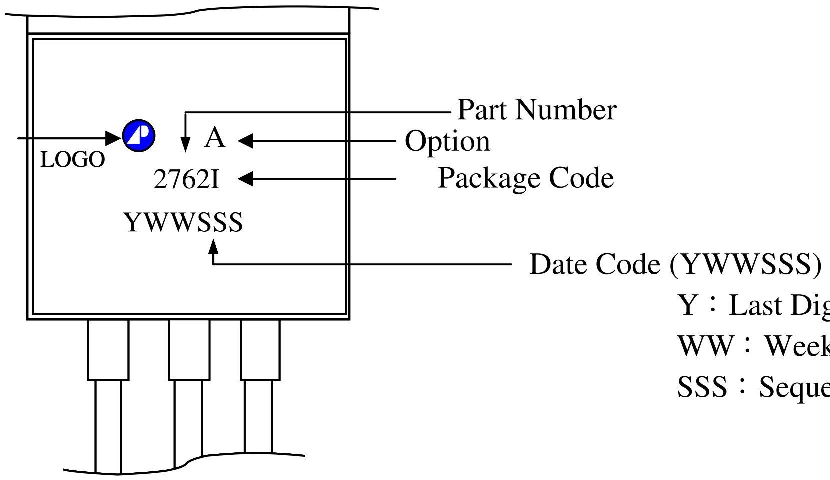


SYMBOLS	Millimeters		
	MIN	NOM	MAX
A	4.50	4.70	4.90
A1	2.30	2.65	3.00
b	0.50	0.70	0.90
b1	0.95	1.20	1.50
c	0.45	0.65	0.80
c2	2.30	2.60	2.90
E	9.70	10.00	10.40
L3	2.91	3.41	3.91
L4	14.70	15.40	16.10
φ	----	3.20	----
e	----	2.54	----

1.All Dimensions Are in Millimeters.

2.Dimension Does Not Include Mold Protrusions.

Part Marking Information & Packing : TO-220CFM



Y：Last Digit Of The Year
WW：Week
SSS：Sequence