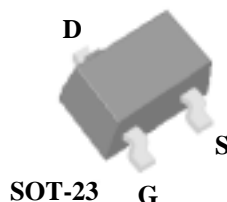




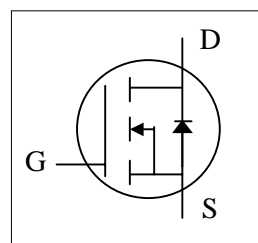
- ▼ Capable of 2.5V gate drive
- ▼ Small package outline
- ▼ Surface mount package



BV_{DSS}	20V
$R_{DS(ON)}$	85m Ω
I_D	3.2A

Description

The Advanced Power MOSFETs from APEC provide the designer with the best combination of fast switching, low on-resistance and cost-effectiveness.



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	20	V
V_{GS}	Gate-Source Voltage	± 12	V
$I_D @ T_A = 25^\circ C$	Continuous Drain Current ³ , V_{GS} @ 4.5V	3.2	A
$I_D @ T_A = 70^\circ C$	Continuous Drain Current ³ , V_{GS} @ 4.5V	2.6	A
I_{DM}	Pulsed Drain Current ^{1,2}	10	A
$P_D @ T_A = 25^\circ C$	Total Power Dissipation	1.38	W
	Linear Derating Factor	0.01	W/ $^\circ C$
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ C$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ C$

Thermal Data

Symbol	Parameter	Value	Unit
Rthj-a	Thermal Resistance Junction-ambient ³	Max. 90	$^\circ C/W$



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	-	0.1	-	V/°C
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =4.5V, I _D =3.6A	-	-	85	mΩ
		V _{GS} =2.5V, I _D =3.1A	-	-	115	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 =3.6A	-	6	-	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} =20V, V _{GS} =0V	-	-	10	uA
I _{GSS}	Gate-Source Leakage	V _{GS} =±12V	-	-	±100	nA
Q _g	Total Gate Charge ²	I _D =3.6A	-	4.4	-	nC
Q _{gs}	Gate-Source Charge	V _{DS} =10V	-	0.6	-	nC
Q _{gd}	Gate-Drain ("Miller") Charge	V _{GS} =4.5V	-	1.9	-	nC
t _{d(on)}	Turn-on Delay Time ²	V _{DS} =10V	-	5.2	-	ns
t _r	Rise Time	I _D =3.6A	-	37	-	ns
t _{d(off)}	Turn-off Delay Time	R _G =6Ω, V _{GS} =5V	-	15	-	ns
t _f	Fall Time	R _D =2.8Ω	-	5.7	-	ns
C _{iss}	Input Capacitance	V _{GS} =0V	-	145	-	pF
C _{oss}	Output Capacitance	V _{DS} =10V	-	100	-	pF
C _{rss}	Reverse Transfer Capacitance	f=1.0MHz	-	50	-	pF

Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
I _S	Continuous Source Current (Body Diode)	V _D =V _G =0V, V _S =1.2V	-	-	1	A
I _{SM}	Pulsed Source Current (Body Diode) ¹		-	-	10	A
V _{SD}	Forward On Voltage ²	I _S =1.6A, V _{GS} =0V	-	-	1.2	V

Notes:

- 1.Pulse width limited by Max. junction temperature.
- 2.Pulse width ≤300us, duty cycle ≤2%.
- 3.Surface mounted on 1 in² copper pad of FR4 board; 270°C/W when mounted on min. copper pad.

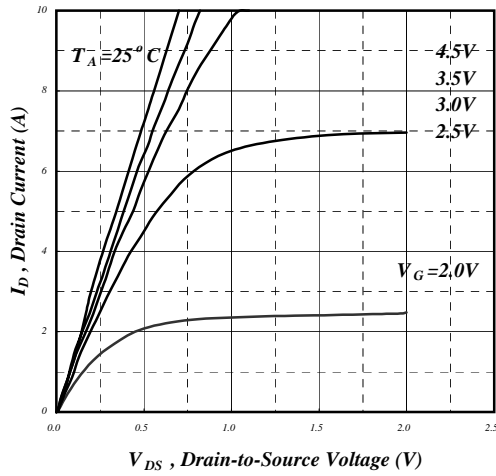


Fig 1. Typical Output Characteristics

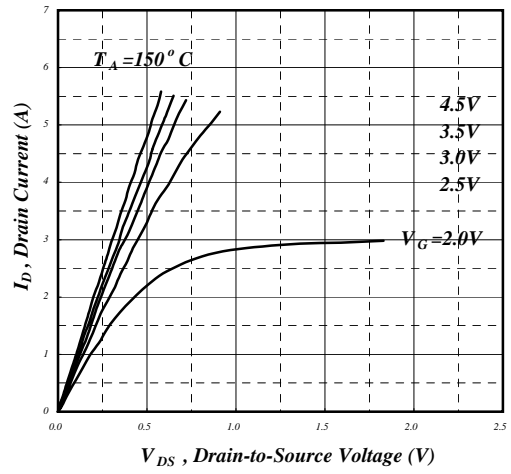


Fig 2. Typical Output Characteristics

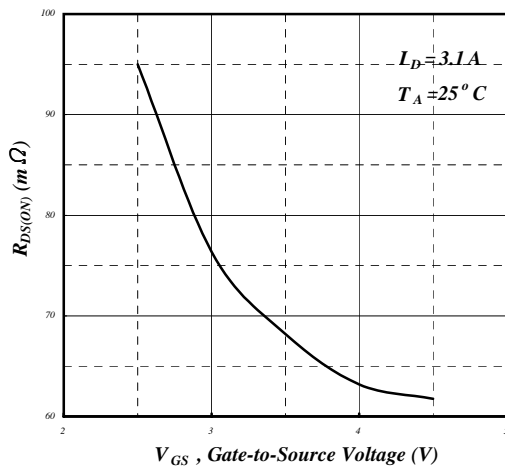


Fig 3. On-Resistance v.s. Gate Voltage

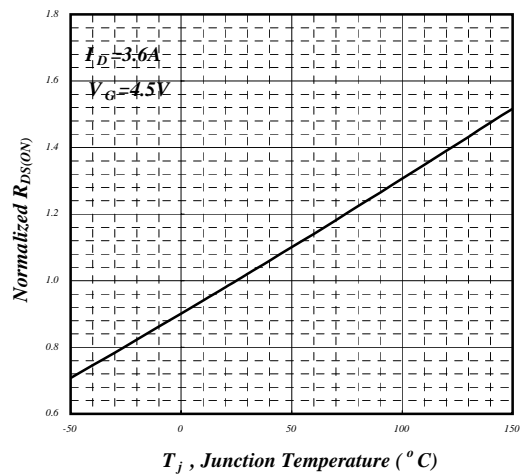


Fig 4. Normalized On-Resistance

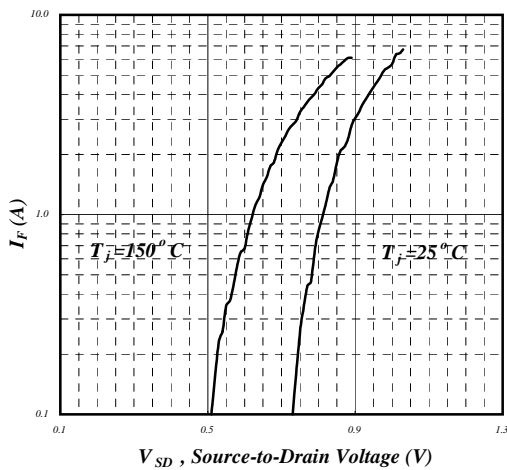


Fig 5. Forward Characteristic of Reverse Diode

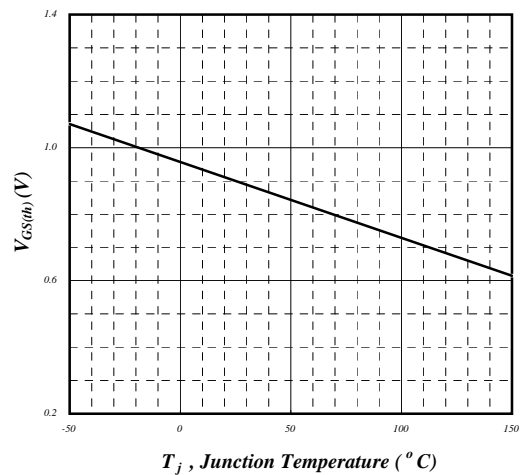


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

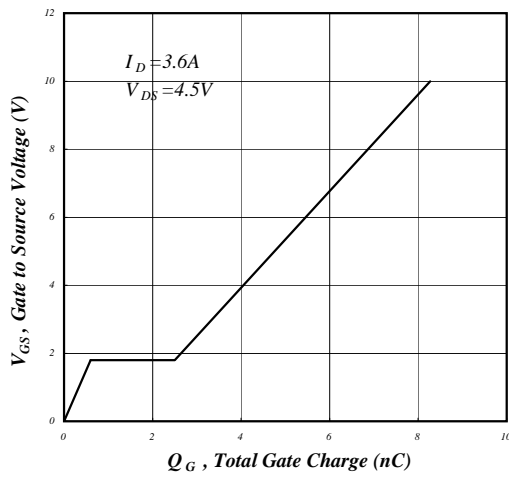


Fig 7. Gate Charge Characteristics

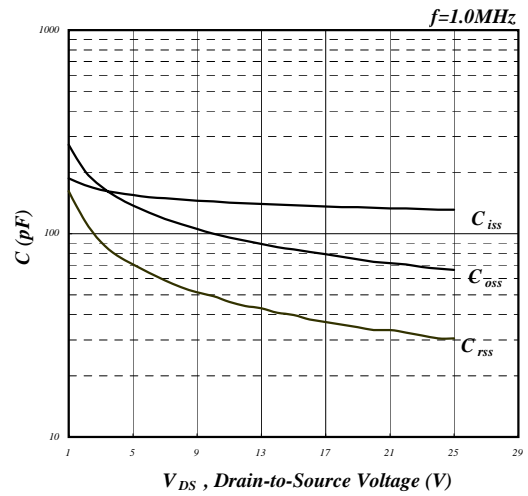


Fig 8. Typical Capacitance Characteristics

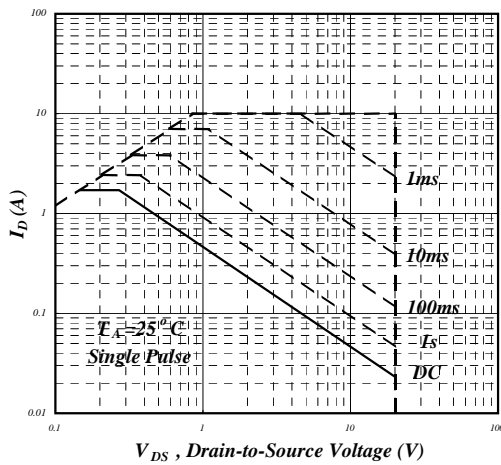


Fig 9. Maximum Safe Operating Area

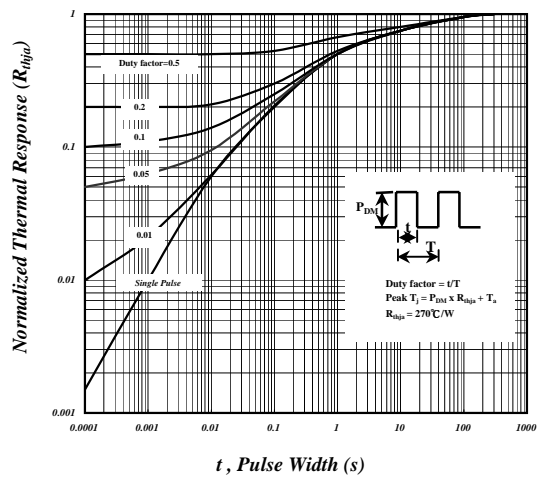


Fig 10. Effective Transient Thermal Impedance

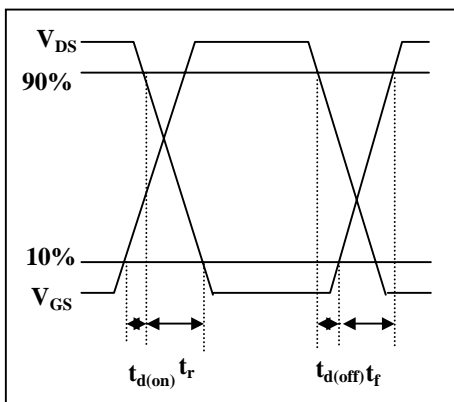


Fig 11. Switching Time Waveform

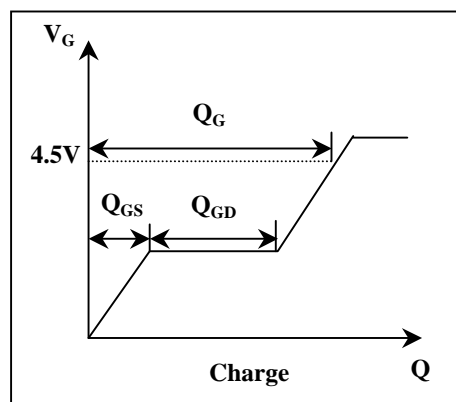
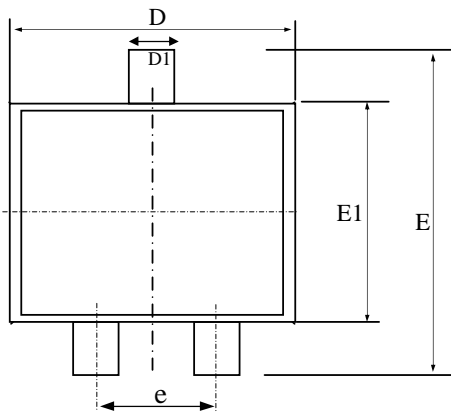


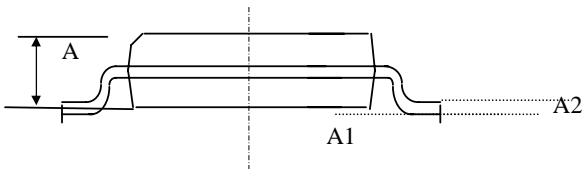
Fig 12. Gate Charge Waveform



Package Outline : SOT-23

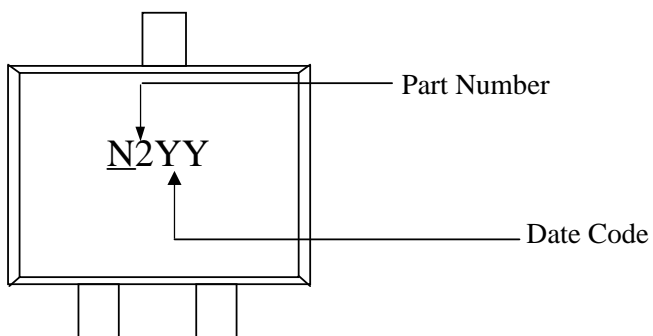


SYMBOLS	Millimeters		
	MIN	NOM	MAX
A	1.00	1.15	1.30
A1	0.00	--	0.10
A2	0.10	0.15	0.25
D1	0.30	0.40	0.50
e	1.70	2.00	2.30
D	2.70	2.90	3.10
E	2.40	2.65	3.00
E1	1.40	1.50	1.80



- 1.All Dimension Are In Millimeters.
- 2.Dimension Does Not Include Mold Protrusions.

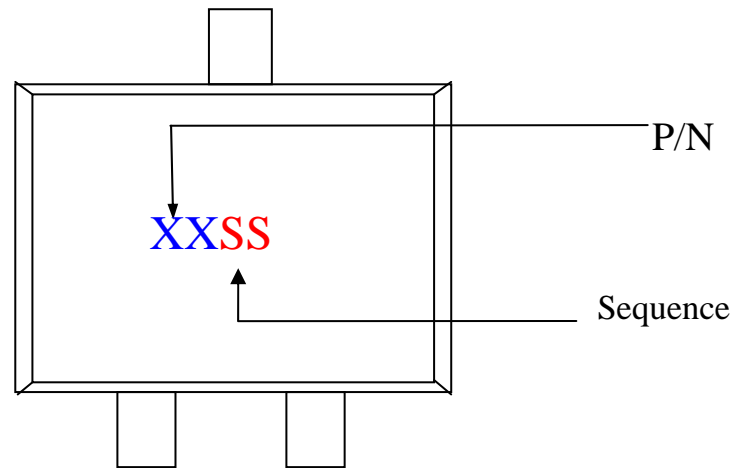
Part Marking Information & Packing : SOT-23





富鼎先進電子股份有限公司
ADVANCED POWER ELECTRONICS CORP.

SOT-23 Series D/C Description



(1) “XX” is the P/N code (see the P/N list)

(2) “ SS ” is the Sequence: “ 1 9 ” and “ A Z ”

2-1. "A~Z" showed on 3rd position --> week 1 ~ week 26,

2-2 "A~Z" showed on 4th position --> week 27 ~ week 52.

(3) Add the under line in first Alphabet for Pb-free Product.

第三碼	對應週別	第四碼	對應週別
A	1	A	27
B	2	B	28
C	3	C	29
D	4	D	30
E	5	E	31
F	6	F	32
G	7	G	33
H	8	H	34
I	9	I	35
J	10	J	36
K	11	K	37
L	12	L	38
M	13	M	39
N	14	N	40
O	15	O	41
P	16	P	42
Q	17	Q	43
R	18	R	44
S	19	S	45
T	20	T	46
U	21	U	47
V	22	V	48
W	23	W	49
X	24	X	50
Y	25	Y	51
Z	26	Z	52

SOT-23 Series Year Code

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<div data-bbox="412 619 694 778" style="border: 1px solid black; padding: 5px; text-align: center;">X X <u>S</u> S</div>	2006,2010,2014	<div data-bbox="1218 619 1500 778" style="border: 1px solid black; padding: 5px; text-align: center;">X X <u>S</u> <u>S</u></div>	2007,2011,2015


4 years in one cycle

富鼎先進電子股份有限公司


包裝規範

附件七：外箱標籤

有鉛產品標籤(For Pb-Sn Product)：

	富鼎先進電子股份有限公司 ADVANCED POWER ELECTRONICS CORP.
P/N :	<input type="text"/>
DateCode :	<input type="text"/>
Q'TY	<input type="text"/>
QC :	檢 查 合 格

無鉛產品標籤(For Pb Free Product)：

	富鼎先進電子股份有限公司 ADVANCED POWER ELECTRONICS CORP.
P/N :	<input type="text"/>
DateCode :	<input type="text"/>
Q'TY	<input type="text"/>
QC :	檢 查 合 格

貼於產品標籤面右上角：



文件編號：QWMP-7801

版 別：11

頁 碼：3



Pb-free /PbProduct Identify

Pb-free Product

Reel

Pb Product



Green Label



Blue label



Pb-free /PbProduct Identify

Carton/Inner Box

Pb-free Product



G.P PASS

Green Label



Pb Product



Blue label

