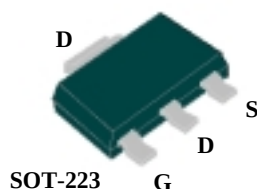




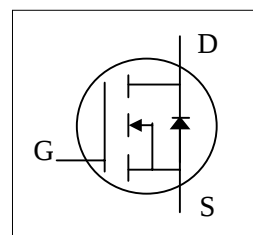
- ▼ Simple Drive Requirement
- ▼ Lower Gate Charge
- ▼ Fast Switching Characteristic



BV_{DSS}	20V
$R_{DS(ON)}$	50m Ω
I_D	6.2A

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
$I_D @ T_A = 25^\circ\text{C}$	Continuous Drain Current ³	6.2	A
$I_D @ T_A = 70^\circ\text{C}$	Continuous Drain Current ³	5	A
I_{DM}	Pulsed Drain Current ¹	30	A
$P_D @ T_A = 25^\circ\text{C}$	Total Power Dissipation	3.2	W
	Linear Derating Factor	0.025	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
Rthj-a	Thermal Resistance Junction-ambient ³ Max.	40	$^\circ\text{C}/\text{W}$

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	-	0.03	-	V/°C
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =4.5V, I _D =6A	-	-	50	mΩ
		V _{GS} =2.5V, I _D =4A	-	-	80	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} =10V, I _D =5A	-	13	-	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	-	-	25	uA
I _{GSS}	Gate-Source Leakage	V _{GS} =±12V	-	-	±100	nA
Q _g	Total Gate Charge ²	I _D =10A	-	5	8	nC
Q _{gs}	Gate-Source Charge	V _{DS} =16V	-	1	-	nC
Q _{gd}	Gate-Drain ("Miller") Charge	V _{GS} =4.5V	-	2	-	nC
t _{d(on)}	Turn-on Delay Time ²	V _{DS} =10V	-	8	-	ns
t _r	Rise Time	I _D =10A	-	55	-	ns
t _{d(off)}	Turn-off Delay Time	R _G =3.3Ω, V _{GS} =5V	-	10	-	ns
t _f	Fall Time	R _D =1Ω	-	3	-	ns
C _{iss}	Input Capacitance	V _{GS} =0V	-	360	580	pF
C _{oss}	Output Capacitance	V _{DS} =20V	-	70	-	pF
C _{rss}	Reverse Transfer Capacitance	f=1.0MHz	-	50	-	pF
R _g	Gate Resistance	f=1.0MHz	-	0.78	-	Ω

Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V _{SD}	Forward On Voltage ²	I _S =2.5A, V _{GS} =0V	-	-	1.3	V
t _{rr}	Reverse Recovery Time ²	I _S =10A, V _{GS} =0V,	-	17	-	ns
Q _{rr}	Reverse Recovery Charge	dI/dt=100A/μs	-	9	-	nC

Notes:

- 1.Pulse width limited by safe operating area.
- 2.Pulse width ≤300us , duty cycle ≤2%.
- 3.t≤10sec , Surface mounted on 1 in² copper pad of FR4 board.

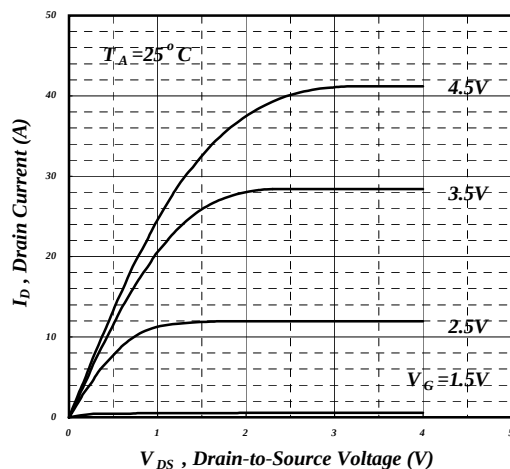


Fig 1. Typical Output Characteristics

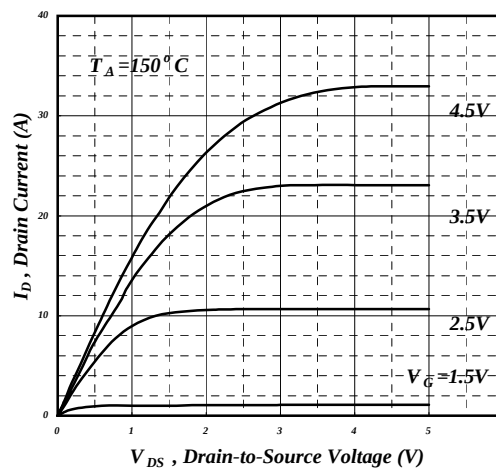


Fig 2. Typical Output Characteristics

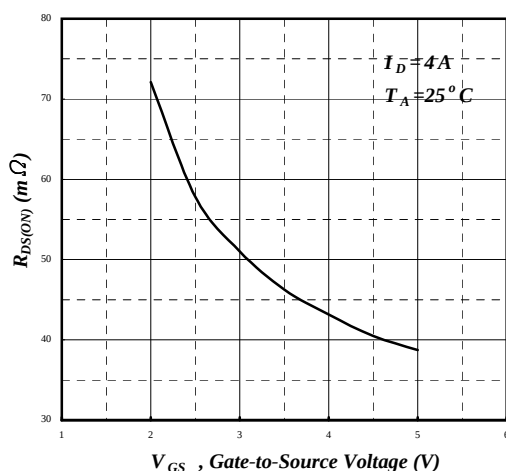


Fig 3. On-Resistance v.s. Gate Voltage

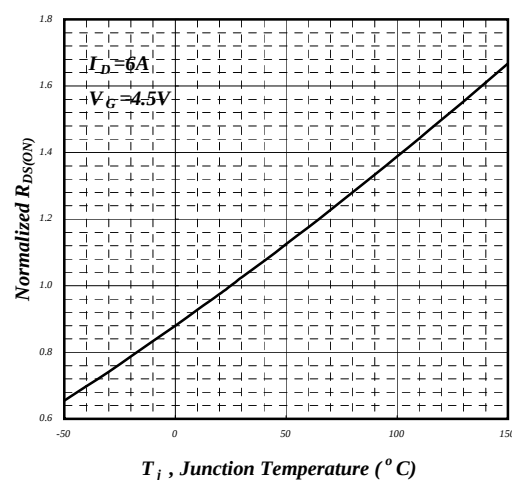


Fig 4. Normalized On-Resistance v.s. Junction Temperature

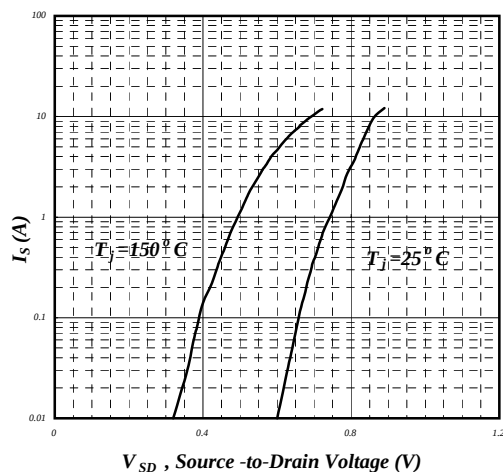


Fig 5. Forward Characteristic of Reverse Diode

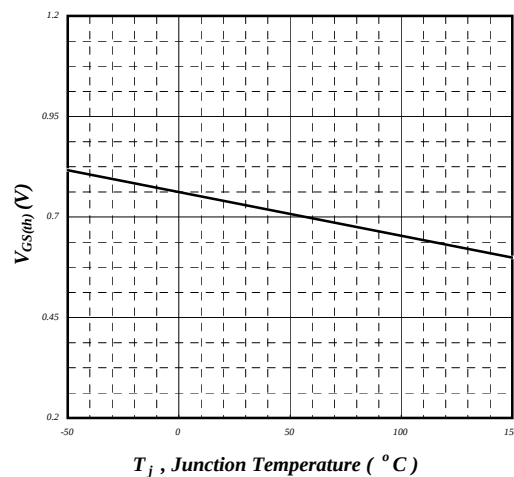


Fig 6. Gate Threshold Voltage v.s. Junction Temperature