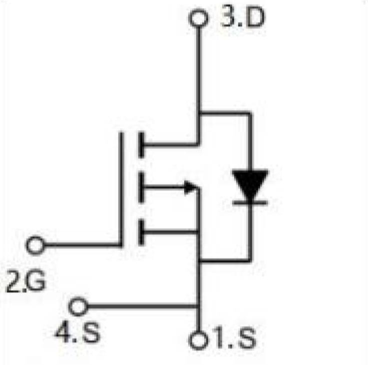
DESCRIPTION

The ANMP007P010ST uses advanced SGT technology and design to provide excellent $R_{DS(ON)}$ with low gate charge.It can be used in a wide variety of applications.



Features：

- Fast Switching
- Low Gate Charge and $R_{DS(ON)}$
- Low Reverse transfer capacitances

Applications：

- Battery switching application
- Hard switched and high frequency circuits
- Power Management

MOSFET

ABSOLUTE MAXIMUM RATINGS(*Tc = 25 ° C unless otherwise specified)*

Symbol	Parameter/ Test Conditions	Values	Unit
V_{DS}	Drain-Source Voltage	-100	V
V_{GS}	Gate-Source Voltage	±20	
I_D@T_C=25℃	Continuous Drain Current, V_{GS} @ -10V[1]	-155	A
I_D@T_C=100℃	Continuous Drain Current, V_{GS} @ -10V[1]	-105	
IDM	Pulsed Drain Current[2]	-540	A
EAS	Single Pulse Avalanche Energy[3]	1232	mJ
I_{AS}	Avalanche Current	-100	A
P_D@T_C=25℃	Total Power Dissipation[4]	560	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃
$R_{θJA}$	Thermal Resistance Junction-Ambient 1	62	℃/W
$R_{θJC}$	Thermal Resistance Junction-Case1	1.1	℃/W

P-CHANNEL MOSFET

ELECTRICAL CHARACTERISTICS (*T c = 25 ° C unless otherwise specified)*

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V(BR)DSS	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=-250μA	-100			V
IDSS	Zero Gate Voltage Drain Current	V_{DS}=-100V, V_{GS} =0V			-1.0	μA
IGSS	Gate to Body Leakage Current	V_{DS}=0V, V_{GS}= ±20V			±200	nA
VGS(th)	Gate Threshold Voltage	V_{DS}=VGS, I_D=-250μA	-2.0	-3.0	-4.0	V
RDS(on)	Static Drain-Source on-Resistance	V_{GS}=-10V, I_D=-20A		7	9	mΩ
Ciss	Input Capacitance	V_{DS}=-50V, V_{GS}=0V, f=1.0MHz		11687		pF
Coss	Output Capacitance			998		pF
Crss	Reverse Transfer Capacitance			113		pF
Qg	Total Gate Charge	V_{DS}=-50V, I_D=-20A,V_{GS}=-10V		170		nC
Qgs	Gate-Source Charge			45		nC
Qgd	Gate-Drain(“Miller”) Charge			31		nC
td(on)	Turn on Delay Time	V_{DD}=-50V, I_D=-5A, R_G=6Ω , V_{GS}=-10V		15		ns
tr	Rise Time			35		ns
td(off)	Turn off Delay Time			100		ns
tf	Fall Time			35		ns
IS	Maximum Continuous Drain to Source Diode Forward Current				-155	A
ISM	Maximum Pulsed Drain to Source Diode Forward Current				-600	A
VSD	Drain to Source Diode Forward Voltage	V_{GS}=0V, I_S=-6.2A			-1.2	V
trr	Body Diode Reverse Recovery Time	TJ=25℃, I_F=-10A,dI/dt=100A/μs		86		ns
Qrr	Body Diode Reverse Recovery Charge			271		nC

Note :

1、The data tested by surface mounted on a 1 inch 2 FR-4 board with 2OZ copper.

2、The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 2%

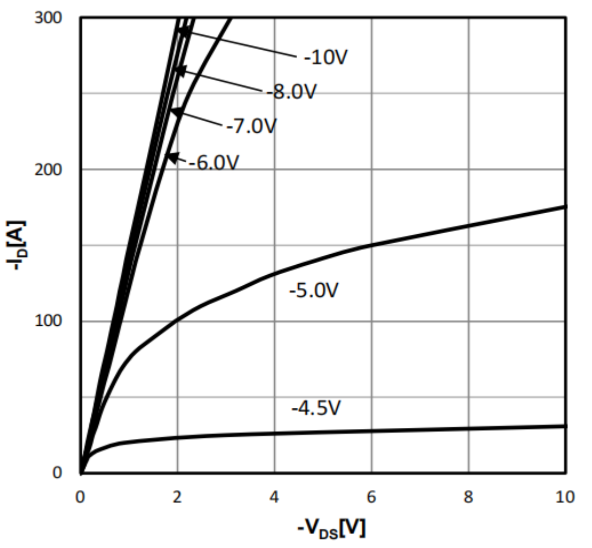
3、The EAS data shows Max. rating . The test condition is V_{DD} =-72V,V_{GS} =-10V,L=0.1mH,IAS =-100A

4、The power dissipation is limited by 150℃ junction temperature

5、The data is theoretically the same as ID and IDM , in real applications , should be limited by total power dissipation.

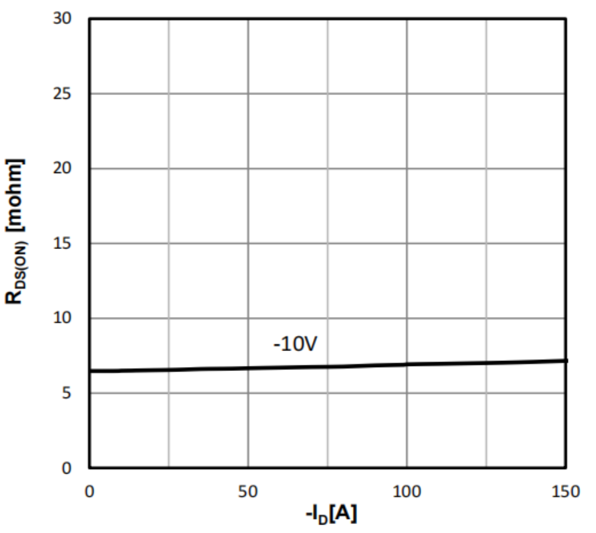
Characteristics Curve

Figure 1: Typ. output characteristics



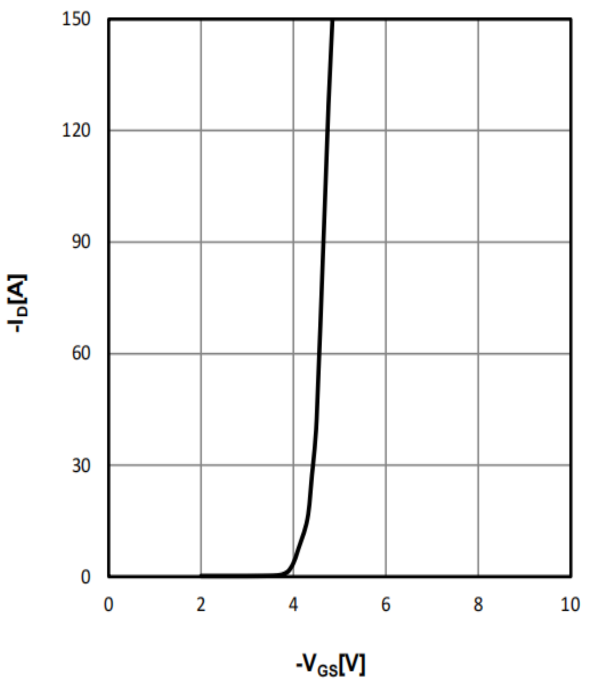
$I_D=f(V_{DS})$, $T_j=25$ °C; parameter: V_{GS}

Figure 2: Typ. drain-source on resistance



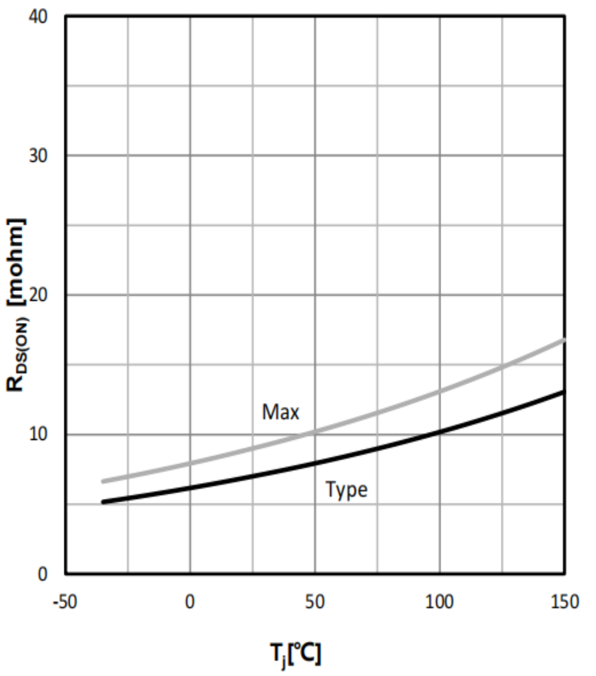
$R_{DS(on)}=f(I_D)$, $T_j=25$ °C; parameter: V_{GS}

Figure 3: Typ. transfer characteristics



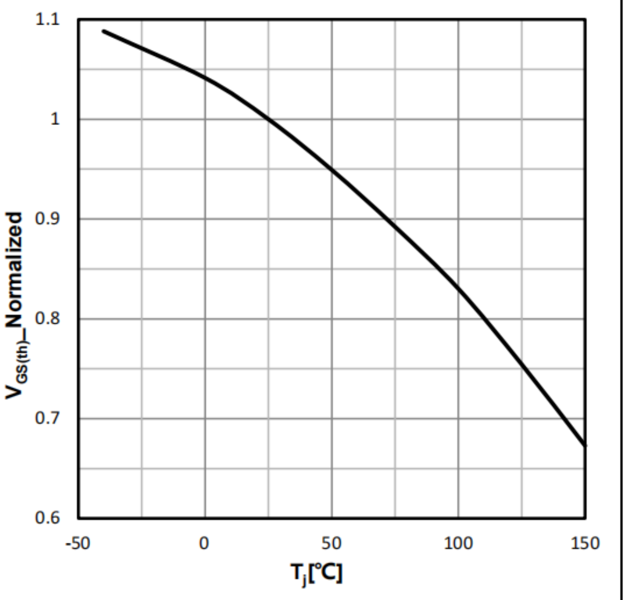
$I_D=f(V_{GS})$, $|V_{DS}|>2|I_D|R_{DS}(on)max$;

Figure 4: drain-source on resistance



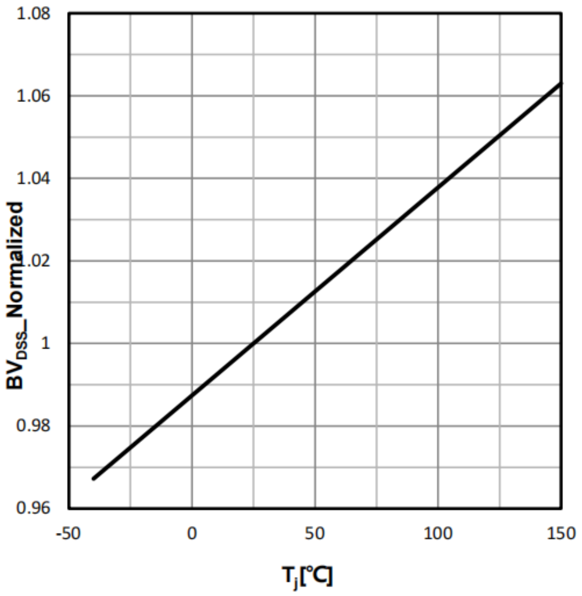
$R_{DS(on)}=f(T_j)$, $I_D=-20A$, $V_{GS}=-10V$;

Figure 5: Typ. gate threshold voltage



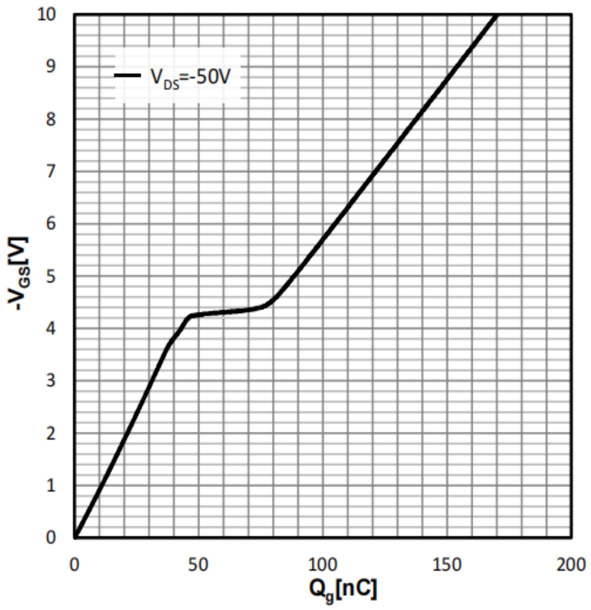
V_{GS}=f(T_j), V_{GS}=V_{DS}, I_D=-250μA;

Figure 6: Drain-source breakdown voltage



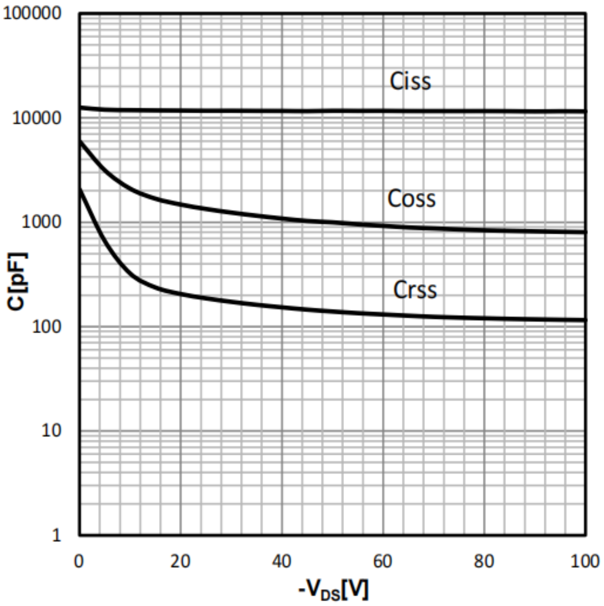
$V_{BR(DSS)}$=f(T_j); I_D=-250μA;

Figure 7: Typ. gate charge



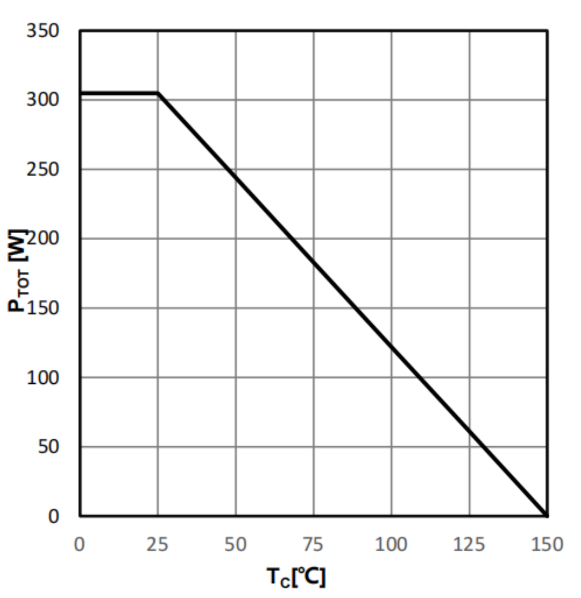
V_{GS}=f(Q_g), I_D=-20A, T_j=25 °C; parameter: V_{DS}

Figure 8: Typ. Capacitances



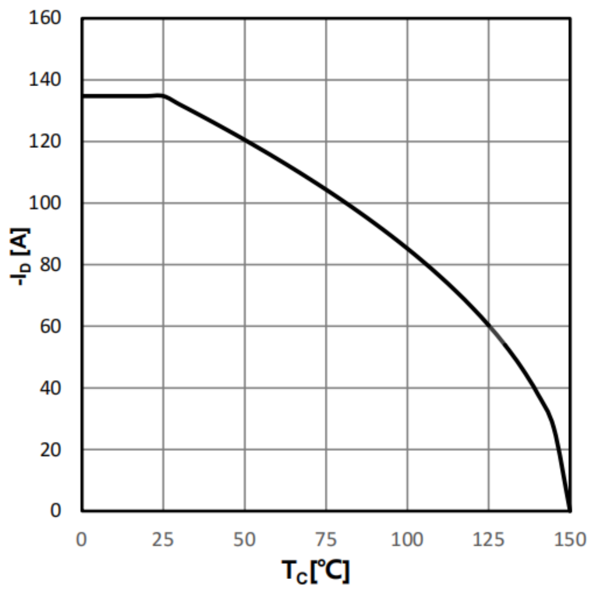
C=f(V_{DS}); V_{GS}=0V; f=1.0 MHz;

Figure 9: Power dissipation



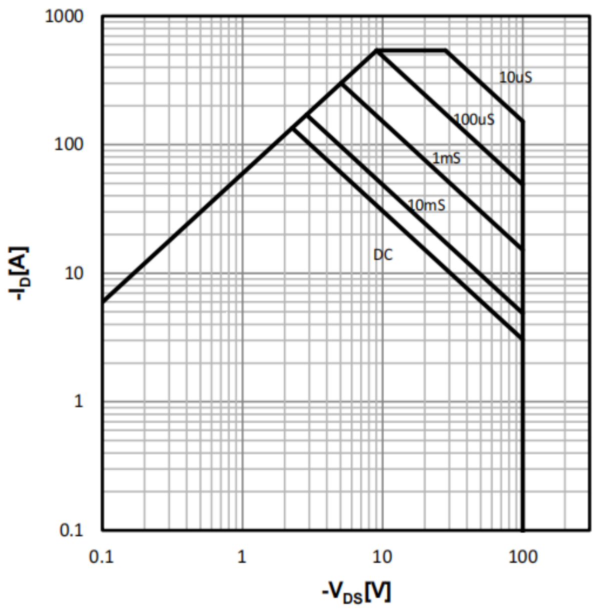
P_{tot}=f(T_C);

Figure 10:Drain current



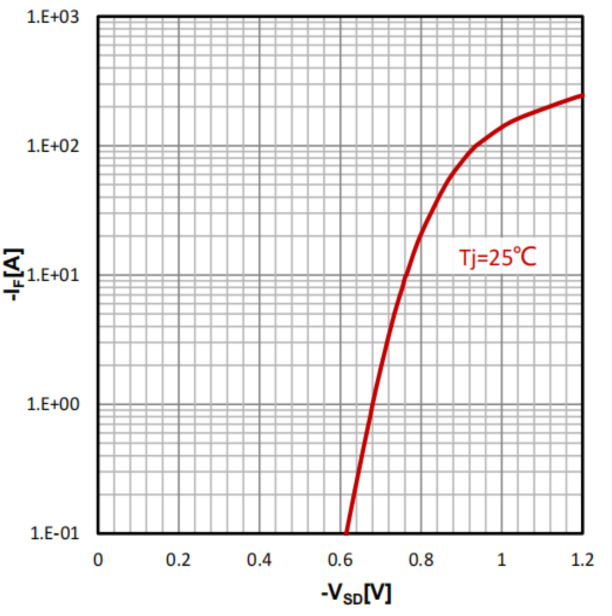
I_D=f(T_C);

Figure 11: Safe operating area



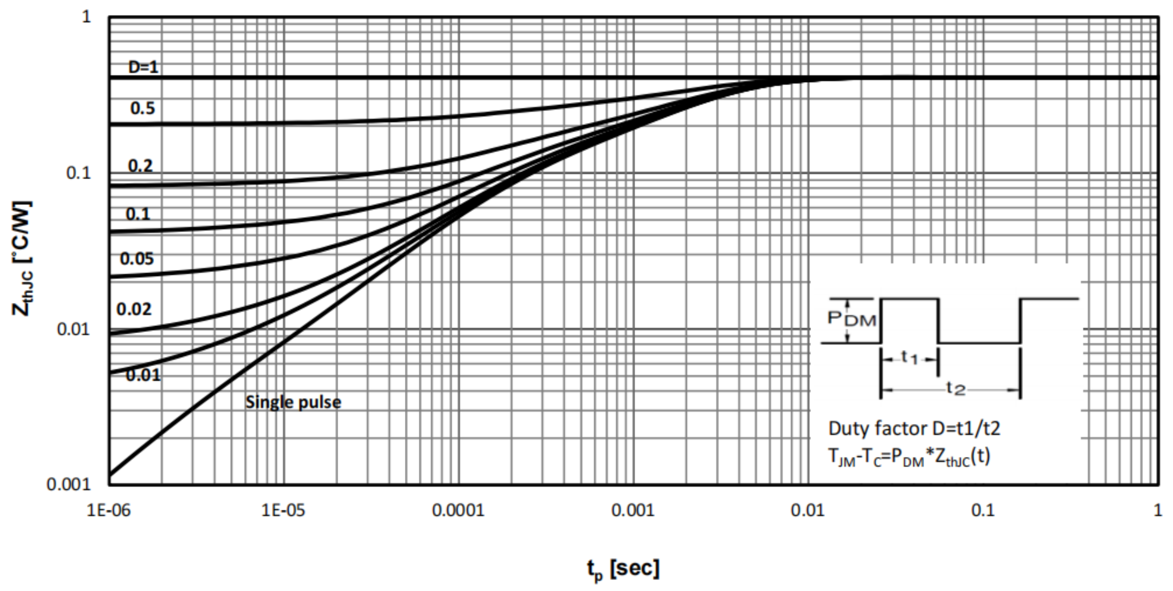
I_D=f(V_{DS}); T_C=25 °C; D=0; parameter: tp

Figure 12: Typ. forward characteristics



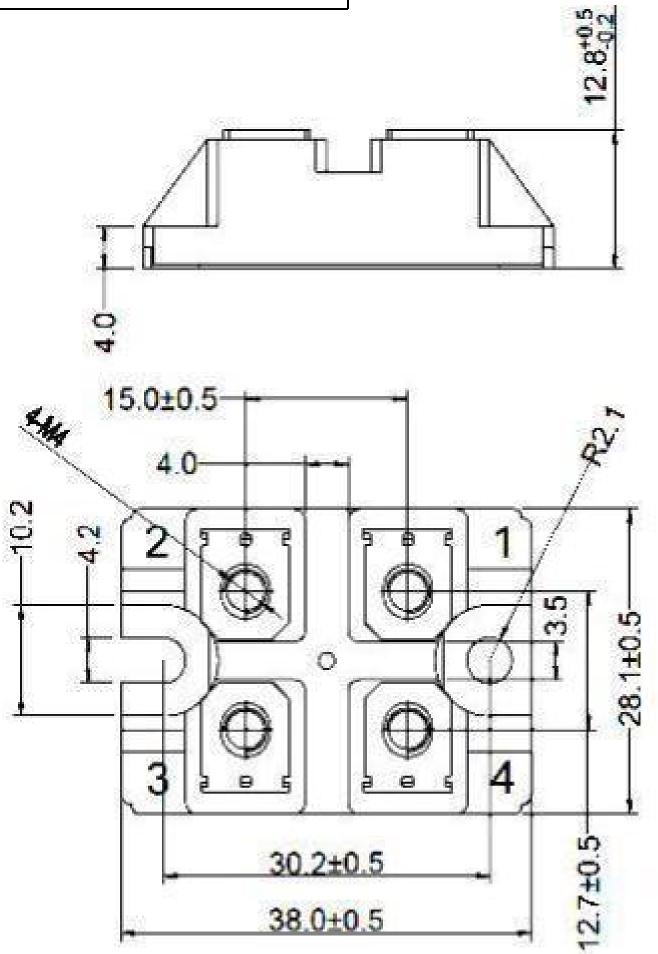
I_F=f(V_{SD});

Figure 13: Max. Transient Thermal Impedance



$Z_{thJC}=f(t_p)$; parameter: D

Package Dimensions: SOT-227



Dimensions in (mm)
Figure 9 . Package Outline