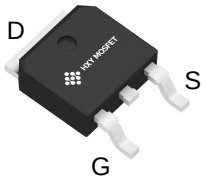
Description

The HXY80P06D uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 4.5V. This device is suitable for use as a Battery protection or in other Switching application.

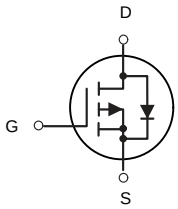


TO-252-2L

General Features

V_{DS} = -60V I_D =-80A

$R_{DS(ON)}$ < 13mΩ @V_{GS}=-10V



P-Channel MOSFET

Application

Battery protection

Load switch

Uninterruptible power supply

Package Marking and Ordering Information

Product ID	Pack	Brand	Qty(PCS)
HXY80P06D	TO-252-2L	HXY MOSFET	2500

Absolute Maximum Ratings (T_C=25℃unless otherwise noted)

Symbol	Parameter	Rating	Units
VDS	Drain-Source Voltage	-60	V
VGS	Gate-Source Voltage	±20	V
I_D@T_C=25℃	Continuous Drain Current, V_{GS} @ 10V[1]	-80	A
I_D@T_C=100℃	Continuous Drain Current, V_{GS} @ 10V[1]	-50	A
I_D	Pulsed Drain Current1	-320	A
ESA	Single Pulse Avalanche Energy2	450	mJ
P_D@T_C=25℃	Total Power Dissipation[4]	110	W
TSTG	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃
R_{θ}JC	Thermal Resistance Junction-Case[1]	1.1	℃/W

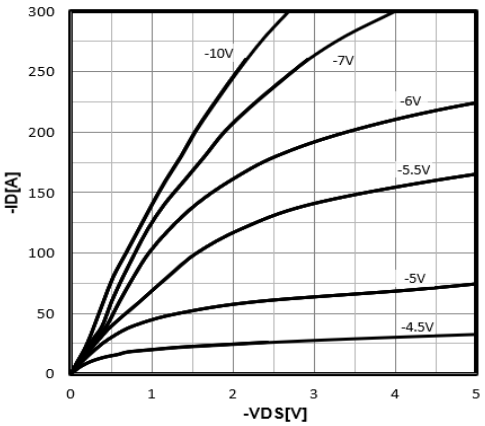
Electrical Characteristics (T_J=25 ˚C, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=-250uA	-60	---	---	V
$\triangle BV_{DSS}/\triangle T_J$	BV_{DSS} Temperature Coefficient	Reference to 25˚C , I_D=-1mA	---	-0.035	---	V/˚C
$R_{DS(ON)}$	Static Drain-Source On-Resistance[2]	V_{GS}=-10V , I_D=-20A	---	11	13	mΩ
		V_{GS}=-4.5V , I_D=-15A	---	12	14	
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =-250uA	-1.3	---	-2.3	V
$\triangle V_{GS(th)}$	$V_{GS(th)}$ Temperature Coefficient		---	4.28	---	mV/˚C
I_{DSS}	Drain-Source Leakage Current	V_{DS}=-48V , V_{GS}=0V , T_J=25˚C	---	---	1	uA
		V_{DS}=-48V , V_{GS}=0V , T_J=55˚C	---	---	5	
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±20V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=-10V , I_D=-20A	---	60	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	2	---	Ω
Q_g	Total Gate Charge (-4.5V)	V_{DS}=-20V , V_{GS}=-4.5V , I_D=-12A	---	56	---	nC
Q_{gs}	Gate-Source Charge		---	11	---	
Q_{gd}	Gate-Drain Charge		---	9	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DD}=-30V , V_{GS}=-10V , R_G=3.3Ω, I_D=-20A	---	4.5	---	ns
T_r	Rise Time		---	2.5	---	
$T_{d(off)}$	Turn-Off Delay Time		---	14.5	---	
T_f	Fall Time		---	3.5	---	
C_{iss}	Input Capacitance	V_{DS}=-15V , V_{GS}=0V , f=1MHz	---	3060	---	pF
C_{oss}	Output Capacitance		---	620	---	
C_{rss}	Reverse Transfer Capacitance		---	20	---	
I_S	Continuous Source Current[1,5]	V_G=V_D=0V , Force Current	---	---	-80	A
I_{SM}	Pulsed Source Current[2,5]		---	---	-320	A
V_{SD}	Diode Forward Voltage[2]	V_{GS}=0V , I_S=-1A , T_J=25˚C	---	---	-1	V

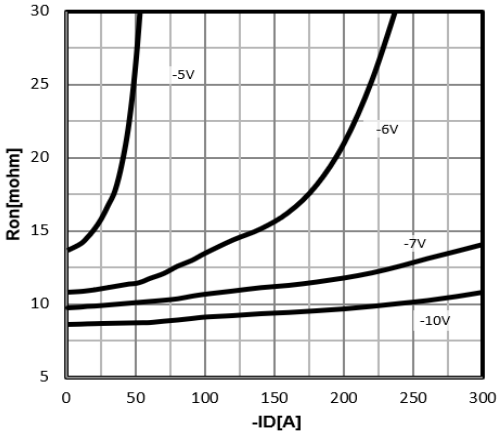
Note :
1.The data tested by surface mounted on a 1 inch^2 FR-4 board with 2OZ copper.
2.The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%
3.The EAS data shows Max. rating . The test condition is V_{DD}=-25V,V_{GS}=-10V,L=0.1mH,I_{AS}=-47.6A
4.The power dissipation is limited by 150˚C junction temperature
5.The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.

Characteristics Curve:

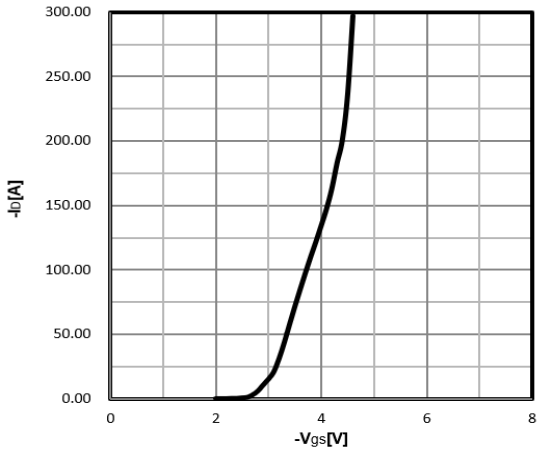
Typ. output characteristics
$I_D=f(V_{DS})$



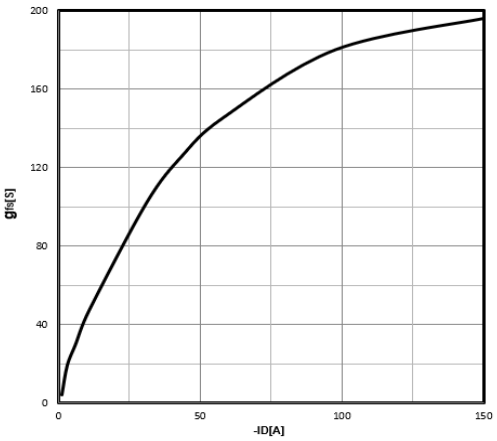
Typ. drain-source on resistance
$R_{DS(on)}=f(I_D)$



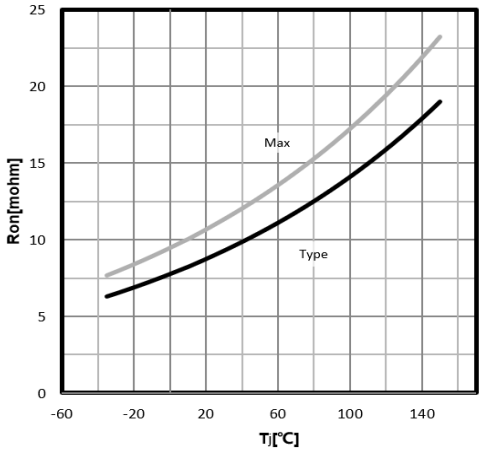
Typ. transfer characteristics
$I_D=f(V_{GS})$



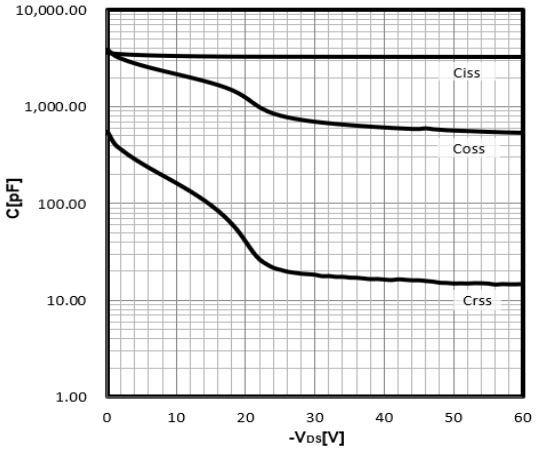
Typ. forward transconductance
$g_{fs}=f(I_D)$



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

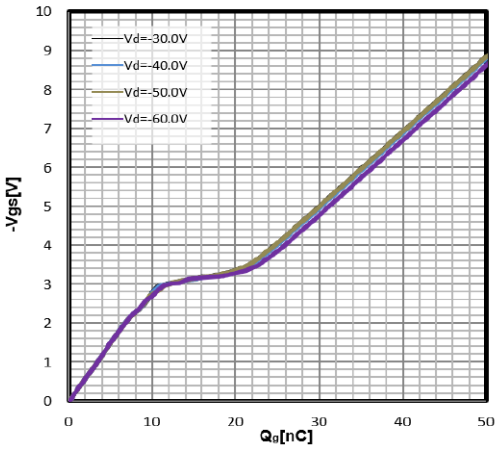


Typ. capacitances
C =f(V_{DS}); V_{GS}=0V; f =1MHz



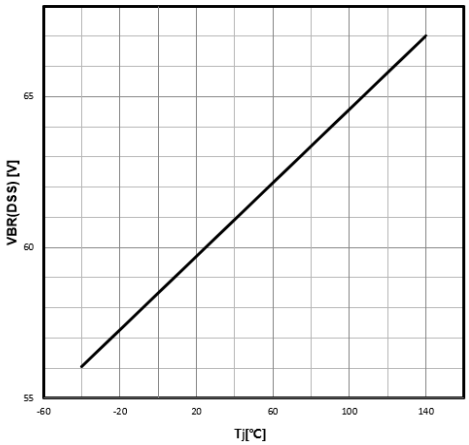
Typ. gate charge

$V_{GS}=f(Q_{gate})$; I_D=-20A



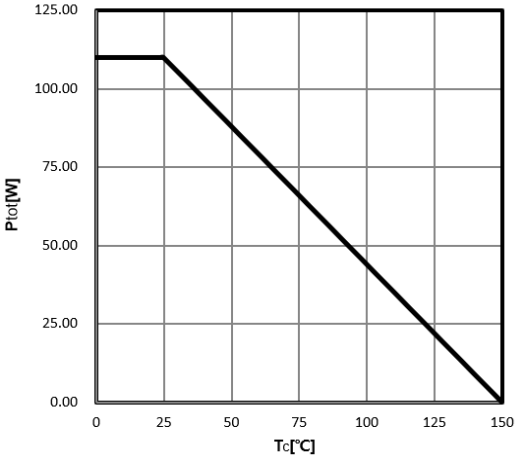
Drain-source breakdown voltage

$V_{BR(DSS)}=f(T_j)$; I_D=-250uA

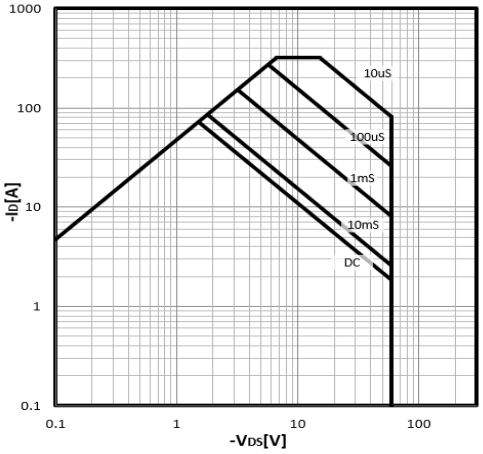


Power Dissipation

$P_{tot}=f(T_C)$

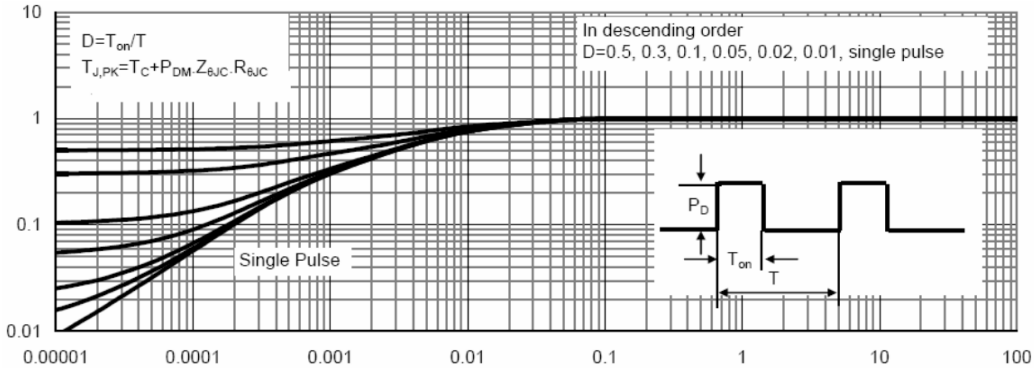


$I_D=f(V_{DS})$

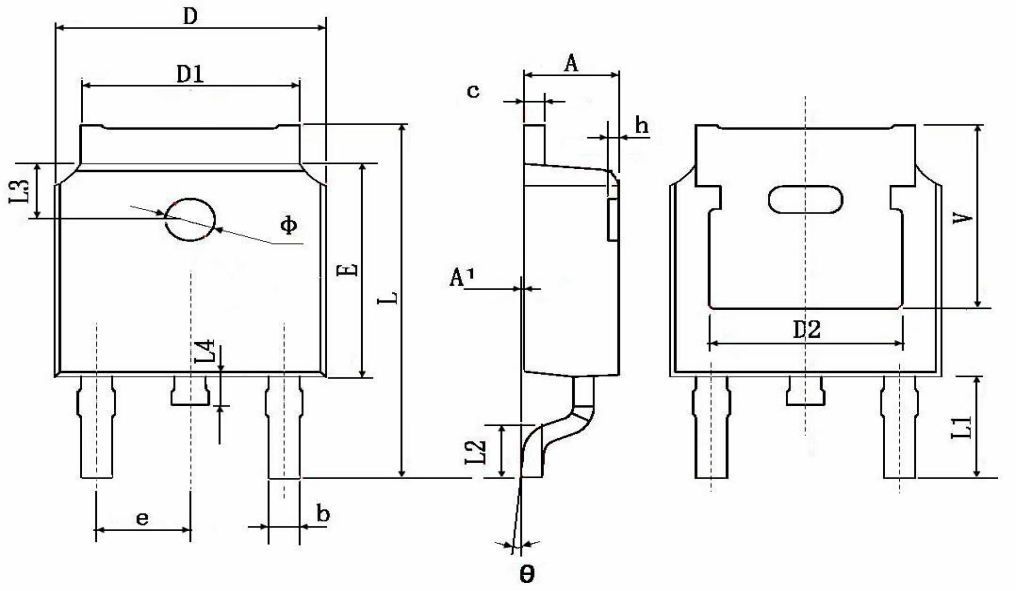


Max. transient thermal impedance

$Z_{thJC}=f(t_p)$



TO-252-2L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.660	0.860	0.026	0.034
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.830 TYP.		0.190 TYP.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.800	10.400	0.386	0.409
L1	2.900 TYP.		0.114 TYP.	
L2	1.400	1.700	0.055	0.067
L3	1.600 TYP.		0.063 TYP.	
L4	0.600	1.000	0.024	0.039
Φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.350 TYP.		0.211 TYP.	

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