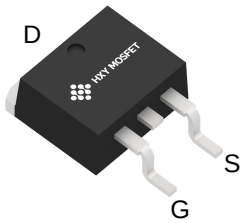
General Description

The HXYG80P06T use advanced SGT MOSFET technology to provide low RDS(ON), low gate charge, fast switching and excellent avalanche characteristics. This device is specially designed to get better ruggedness and suitable.

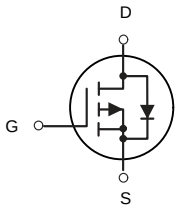


TO-263

General Features

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

$R_{DS(ON)}$ < 11mΩ @ V_{GS}=-10 V



P-Channel MOSFET

Applications

Consumer electronic power supply Motor control

Synchronous-rectification Isolated DC

Synchronous-rectification applications

Package Marking and Ordering Information

Product ID	Pack	Brand	Qty(PCS)
HXYG80P06T	TO-263	HXY MOSFET	800

Absolute Maximum Ratings at T_j=25°C unless otherwise noted

Parameter	Symbol	Value	Unit
Drain source voltage	VDS	-60	V
Gate source voltage	VGS	±20	V
Continuous drain current[1)]	ID	-80	A
Pulsed drain current[2)]	ID, pulse	-320	A
Power dissipation[3)]	P_D	110	W
Single pulsed avalanche energy[5)]	EAS	450	mJ
Operation and storage temperature	Tstg，Tj	-55 to 150	°C
Thermal resistance, junction-case	RθJC	1.1	°C/W

Static Characteristics						
Symbol	Parameter	Test Conditions	Value			Units
			Min.	Typ.	Max.	
V_{DSS}	Drain to Source Breakdown Voltage	V_{GS}=0V, I_D=-250μA	-60	--	--	V
I_{DSS}	Drain to Source Leakage Current	V_{DS} = -60V, V_{GS}= 0V	--	--	1	μA
$I_{GSS(F)}$	Gate to Source Forward Lea kage	V_{GS} =-20V	--	--	100	nA
$I_{GSS(R)}$	Gate to Source Reverse Leakage	V_{GS} =+20V	--	--	-100	nA
$V_{GS(TH)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=-250μA	-1.3	-1.8	-2.3	V
$R_{DS(ON)1}$	Drain-to-Source On-Resistance	V_{GS}=-10V, I_D=-20A	--	9.0	11.0	mΩ
$R_{DS(ON)2}$	Drain-to-Source On-Resistance	V_{GS}=-4.5V, I_D=-15A	--	12.0	16.0	mΩ
g_{FS}	Forward Transconductance	V_{DS}=-5V, I_D=-20A	50	--	--	S

Dynamic Characteristics						
Symbol	Parameter	Test Conditions	Value			Units
			Min.	Typ.	Max.	
C_{iss}	Input Capacitance	V_{GS}=0V	--	3060	--	pF
C_{oss}	Output Capacitance	V_{DS}=-30V	--	620	--	
C_{rss}	Reverse Transfer Capacitance	f=1.0MHz	--	20	--	
R_g	Gate resistance	V_{GS}=0V, V_{DS} Open	--	2.0	--	Ω

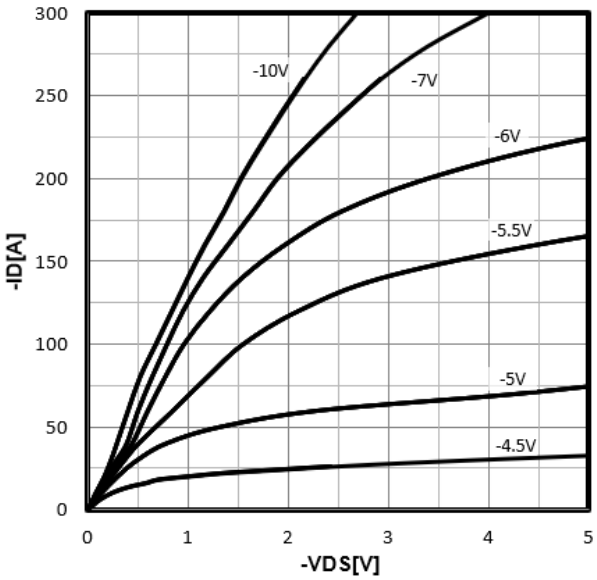
Resistive Switching Characteristics						
Symbol	Parameter	Test Conditions	Value			Units
			Min.	Typ.	Max.	
$t_{d(ON)}$	Turn-on Delay Time	I_D=-20A, R_L=0.75Ω	--	4.5	--	ns
tr	Rise Time	V_{DS}= -30V	--	2.5	--	
$t_{d(OFF)}$	Turn-Off Delay Time	V_{GS}= -10V	--	14.5	--	
t_f	Fall Time	R_G= 3Ω	--	3.5	--	
Q_g	Total Gate Charge	V_{GS}=-10V	--	56	--	nC
Q_{gs}	Gate Source Charge	V_{DS}=-30V	--	11	--	
Q_{gd}	Gate Drain Charge	I_D=-20A	--	9	--	

Source-Drain Diode Characteristics						
Symbol	Parameter	Test Conditions	Value			Units
			Min.	Typ.	Max.	
I_S	Diode Forward Current	T_C=25 °C	--	--	-80	A
I_{SM}	Diode Pulse Current		--	--	-320	A
V_{SD}	Diode Forward Voltage	I_S=-6.0A, V_{GS}=0V	--	--	-1.2	V
t_{rr}	Reverse Recovery time	I_S=-20A, V_{DD}=-30V	--	60	--	ns
Q_{rr}	Reverse Recovery Charge	dI/dt=100A/μs	--	105	--	nC

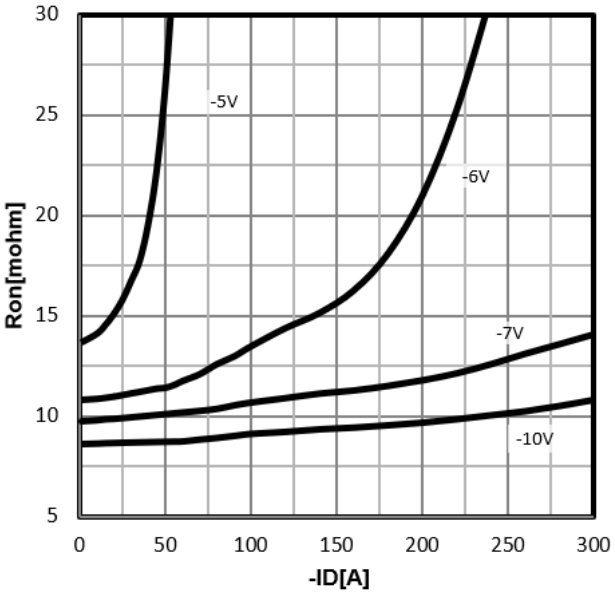
[a1]: Repetitive rating; pulse width limited by maximum junction temperature
[a2]: V_{DD} =30V, L=0.3mH, R_G =25Ω, Starting T_j=25°C

Characteristics Curve

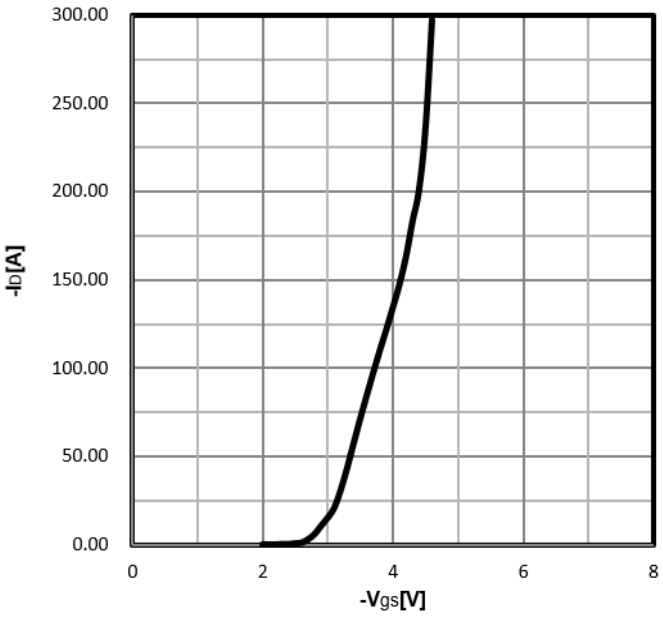
Typ. output characteristics
$I_D=f(V_{DS})$



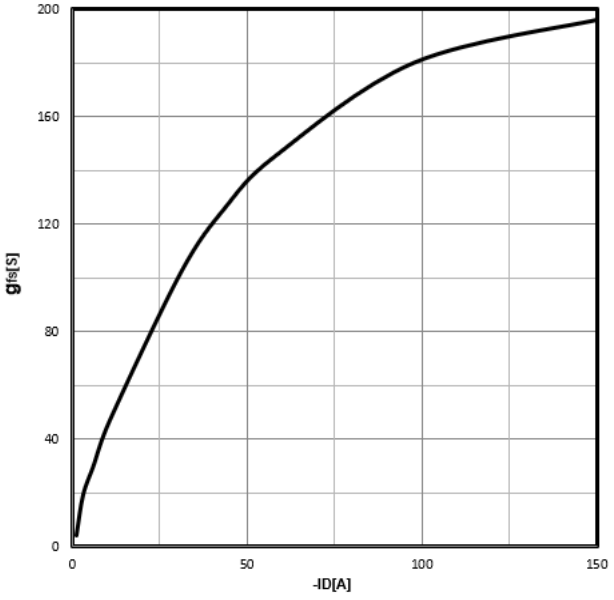
Typ. drain-source on resistance
$R_{DS(on)}=f(I_D)$



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

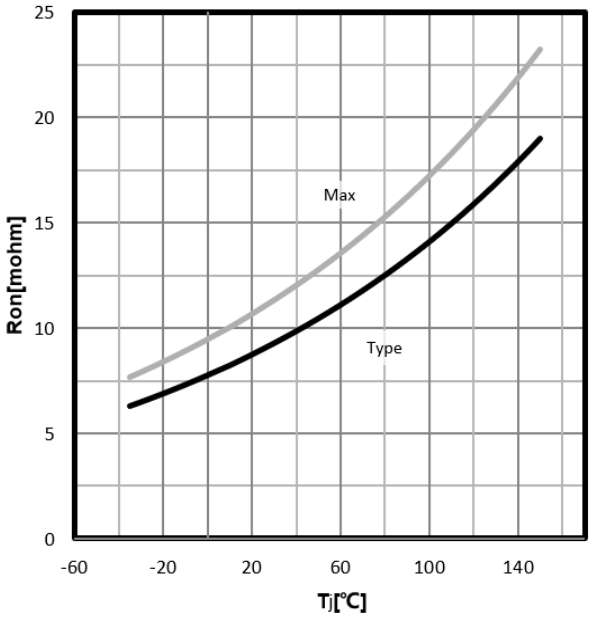


Typ. forward transconductance
$g_{fs}=f(I_D)$



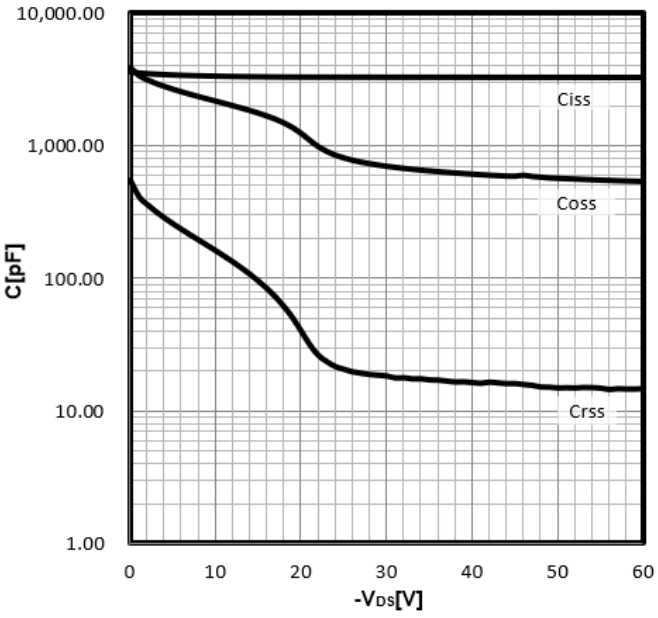
Drain-source on-state resistance

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



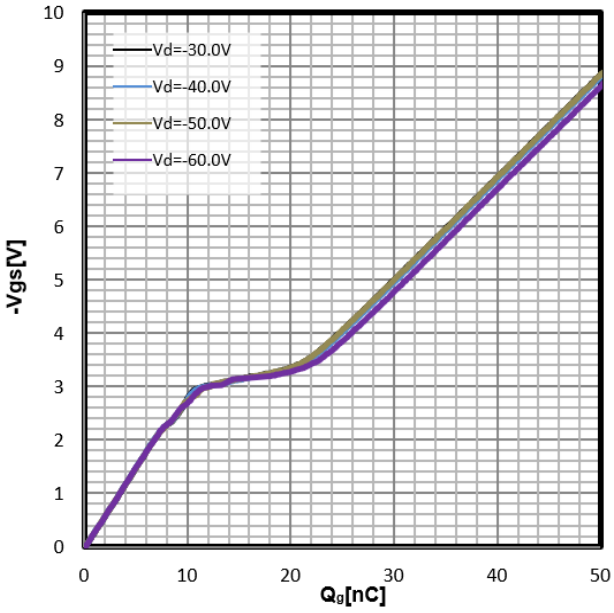
Typ. capacitances

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



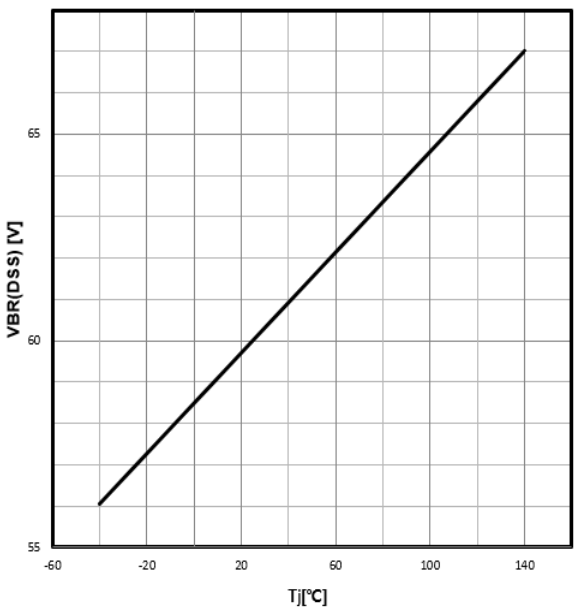
Typ. gate charge

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



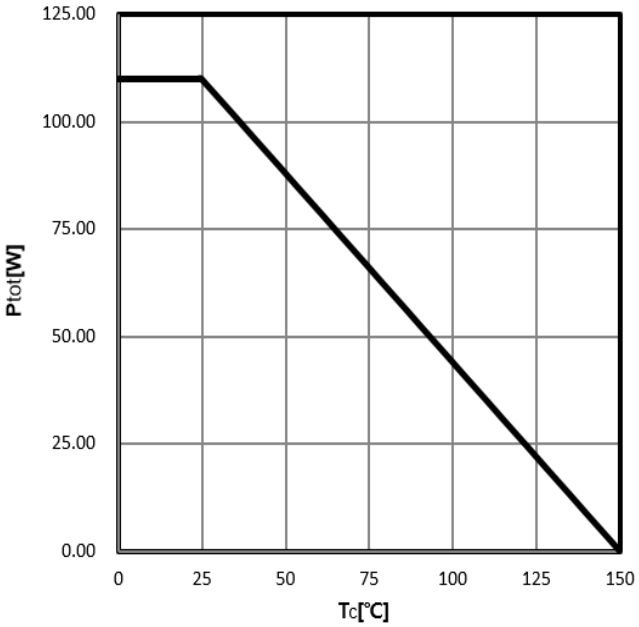
Drain-source breakdown voltage

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

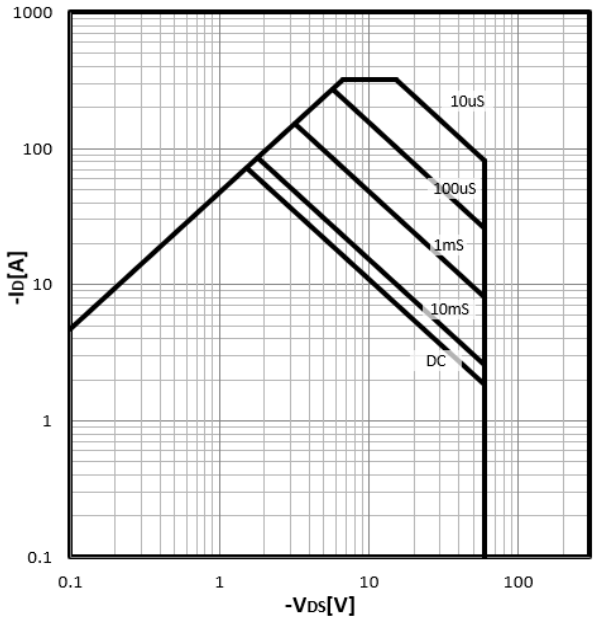


Power Dissipation

$P_{tot}=f(T_C)$

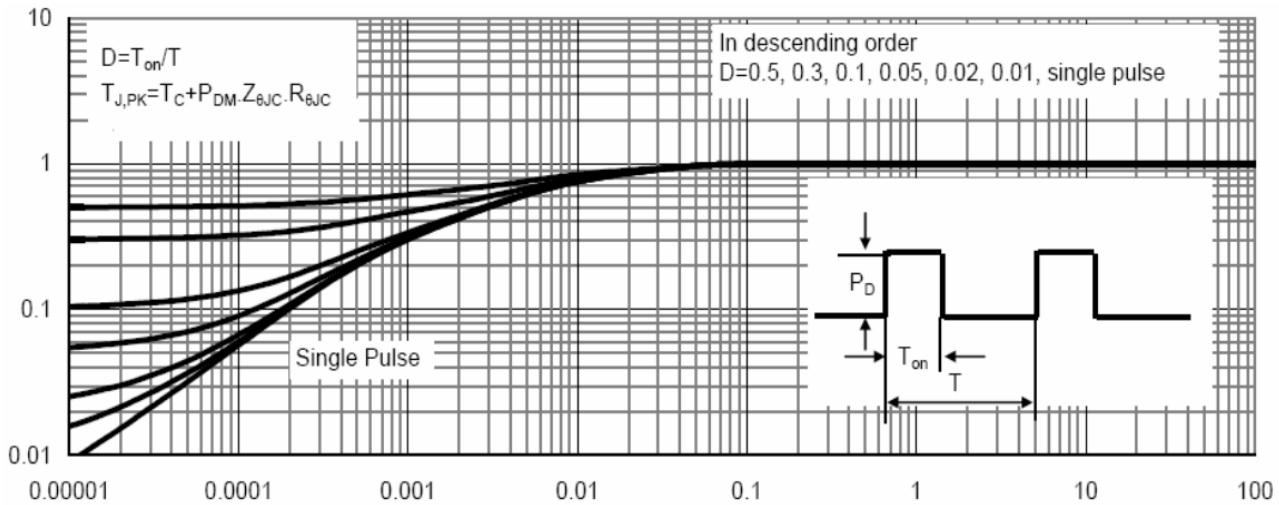


$I_D=f(V_{DS})$

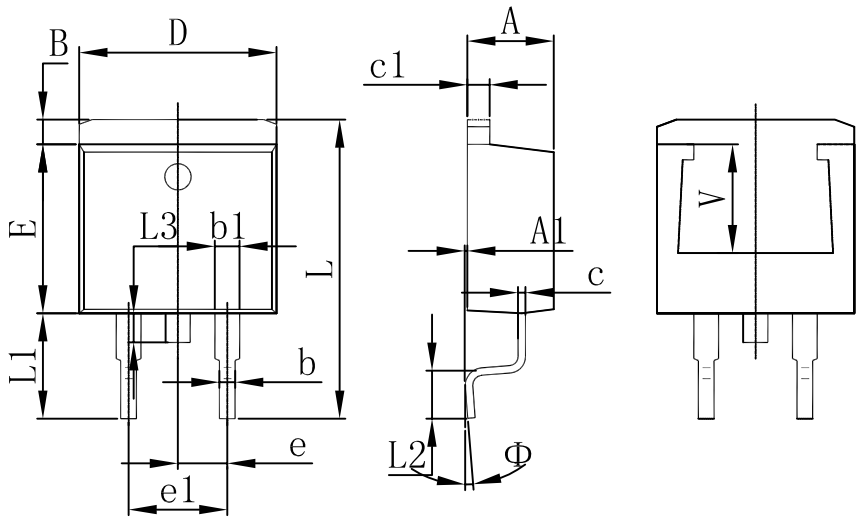


Max. transient thermal impedance

$Z_{thJC}=f(t_p)$



TO-263 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.470	4.670	0.176	0.184
A1	0.000	0.150	0.000	0.006
B	1.120	1.420	0.044	0.056
b	0.710	0.910	0.028	0.036
b1	1.170	1.370	0.046	0.054
c	0.310	0.530	0.012	0.021
c1	1.170	1.370	0.046	0.054
D	10.010	10.310	0.394	0.406
E	8.500	8.900	0.335	0.350
e	2.540 TYP.		0.100 TYP.	
e1	4.980	5.180	0.196	0.204
L	14.940	15.500	0.588	0.610
L1	4.950	5.450	0.195	0.215
L2	2.340	2.740	0.092	0.108
L3	1.300	1.700	0.051	0.067
Φ	0°	8°	0°	8°
V	5.600 REF.		0.220REF.	

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