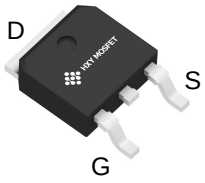
Description

The HXY30N02D uses advanced trench technology to provide excellent $R_{DS(ON)}$ and low gate charge . The complementary MOSFETs may be used to form a level shifted high side switch, and for a host of other applications



TO-252-2L

General Features

V_{DS} = 20V,I_D =30A

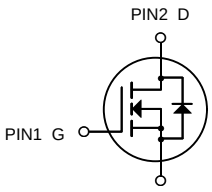
$R_{DS(ON)}$ < 15mΩ@ V_{GS}=4.5V

Application

Power switching application

Hard Switched and High Frequency Circuits

Uninterruptible Power Supply



N-Channel MOSFET

Ordering Information

Product ID	Pack	Brand	Qty(PCS)
HXY30N02D	TO-252-2L	HXY MOSFET	2500

Absolute Maximum Ratings@T_j=25ºC(unless otherwise specified)

Symbol	Parameter	Rating	Units
VDS	Drain-Source Voltage	20	V
VGS	Gate-Source Voltage	±12	V
I_D@T_C=25℃	Drain Current, V_{GS} @ 4.5V	30	A
I_D@T_C=100℃	Drain Current, V_{GS} @ 4.5V	18	A
IDM	Pulsed Drain Current[1]	60	A
P_D@T_C=25℃	Total Power Dissipation	5	W
P_D@T_A=25℃	Total Power Dissipation[3]	2	W
E_{AS}	Single Pulse Avalanche Energy[4]	12.1	mJ
TSTG	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃
Rthj-c	Maximum Thermal Resistance, Junction-case	5	℃/W
Rthj-a	Maximum Thermal Resistance, Junction-ambient[3]	100	℃/W

Electrical Characteristics (T_J=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} = 0 V, I_D = 250μA	20	-	-	V
Gate Leakage Current	I_{GSS}	V_{GS} = ±12V, V_{DS} = 0 V	-	-	±100	nA
Drain Cut-off Current	I_{DSS}	V_{DS} = 20V, V_{GS} = 0 V	-	-	1	μA
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS} = V_{DS}, I_D = 250μA	0.45	0.7	1	V
Drain-Source On-State Resistance[3]	$R_{DS(on)}$	V_{GS} = 4.5V, I_D =5A	-	10	15	mΩ
		V_{GS} = 2.5V, I_D = 4.7A	-	17	30	
		V_{GS} = 1.8V, I_D = 4.3A	-	28	50	
Dynamic Characteristics[4]						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 10V, f = 1MHz	-	700	-	pF
Output Capacitance	C_{oss}		-	120	-	
Reverse Transfer Capacitance	C_{rss}		-	105	-	
Switching Characteristics[4]						
Total Gate Charge	Q_g	V_{GS}= 4.5V, V_{DS}= 10V, I_D= 5A	-	10.5	-	nC
Gate-Source Charge	Q_{gs}		-	2	-	
Gate-Drain Charge	Q_{gd}		-	2.5	-	
Turn-On Time	$t_{d(on)}$	V_{GEN}= 5V, V_{DD} = 10V, I_D = 5A,R_G= 3Ω,	-	10	-	ns
Rise Time	t_r		-	20	-	
Turn-Off Time	$t_{d(off)}$		-	32	-	
Fall Time	t_f		-	12	-	
Source-Drain Diode Characteristics						
Body Diode Voltage[3]	V_{SD}	I_S=4A, V_{GS} = 0V	-	-	1.2	V
Continuous Source Current	I_S		-	-	30	A

Notes:

1. Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)}$=150°C.
2. The data tested by surface mounted on a 1 inch2 FR-4 board with 2OZ copper, The value in any given application depends on the user's specific board design.
3. Pulse Test: Pulse width≤300μs, duty cycle≤2%.
4. This value is guaranteed by design hence it is not included in the production test.

Typical Characteristics

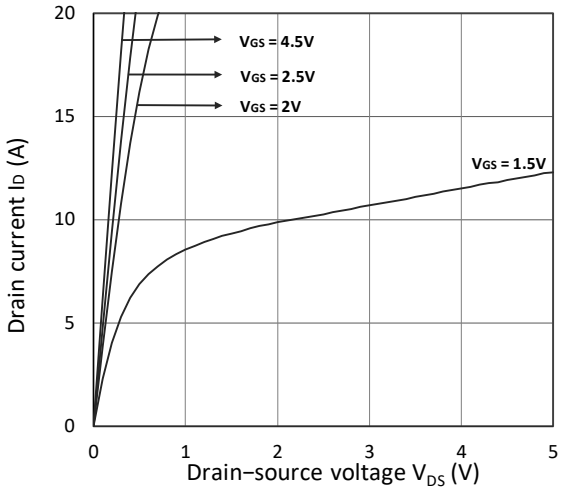


Figure 1. Output Characteristics

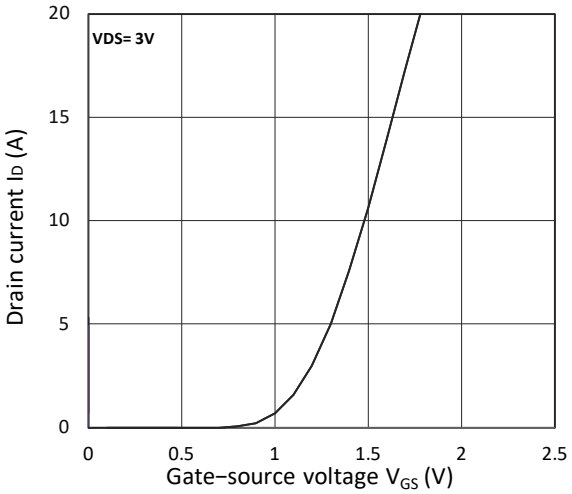


Figure 2. Transfer Characteristics

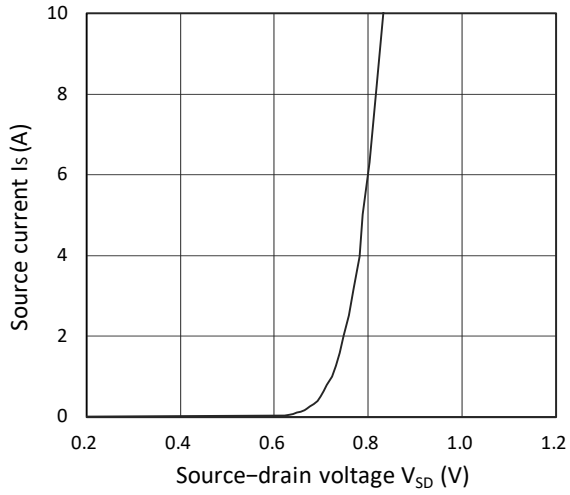


Figure 3. Forward Characteristics of Reverse

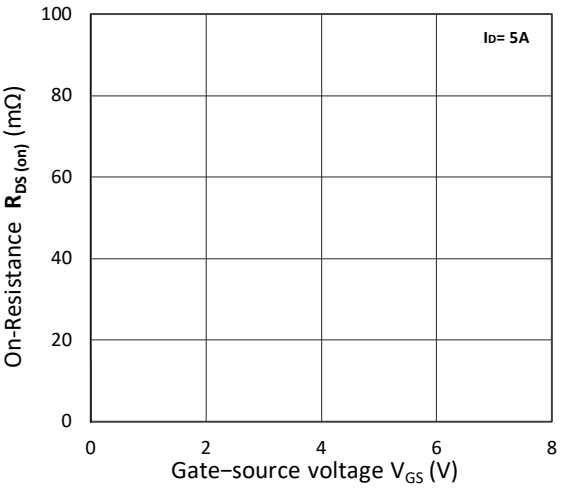


Figure 4. $R_{DS(ON)}$ vs. V_{GS}

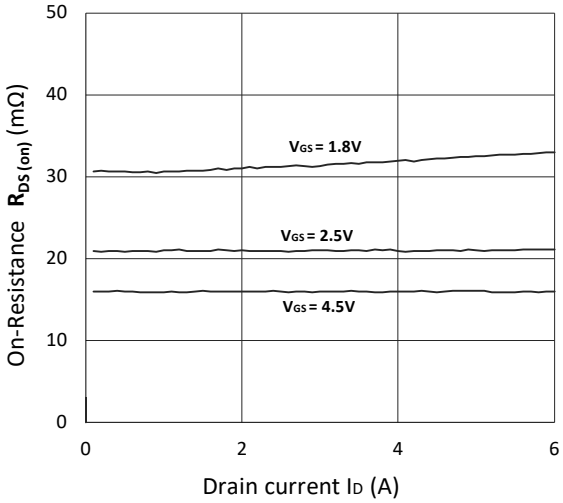


Figure 5. $R_{DS(ON)}$ vs. I_D

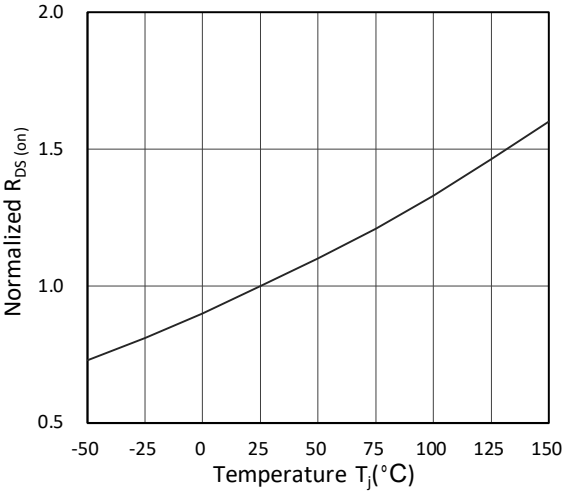


Figure 6. Normalized $R_{DS(on)}$ vs. Temperature

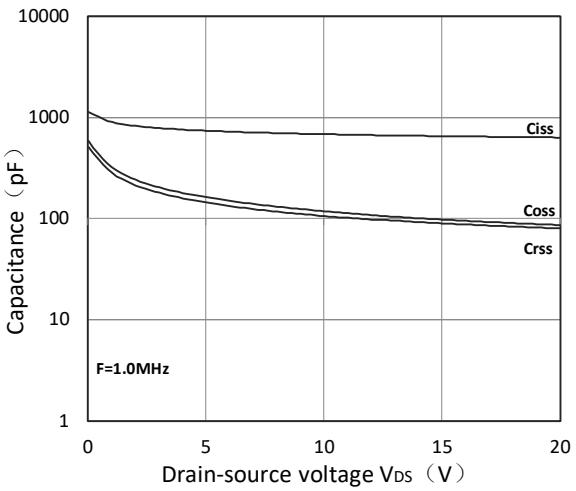


Figure 7. Capacitance Characteristics

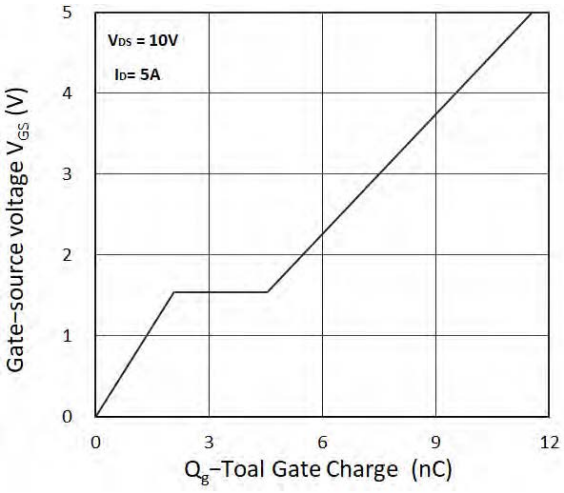
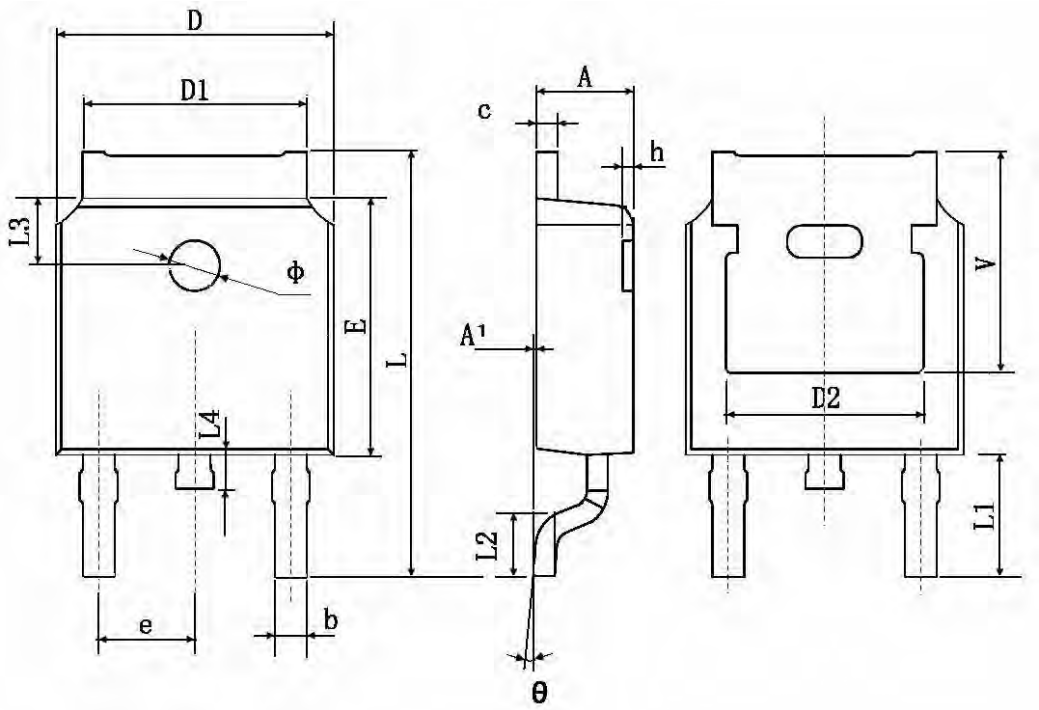


Figure 8. Gate Charge Characteristics

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	0.483 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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