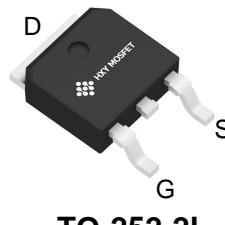




Description

The HXY70N07D can be used in various power switching circuit for system miniaturization and higher efficiency. The package form is TO-252-2L, which accords with the RoHS standard.



General Features

$V_{DS} = 70V$ $I_D = 70A$

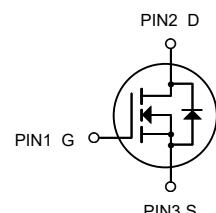
$R_{DS(ON)} < 8.6m\Omega$ @ $V_{GS}=10V$

Application

Battery protection

Load switch

Uninterruptible power supply



N-Channel MOSFET

Package Marking and Ordering Information

Product ID	Pack	Brand	Qty(PCS)
HXY70N07D	TO-252-2L	HXY MOSFET	2500

Absolute Maximum Ratings ($T_c=25^\circ C$ unless otherwise noted)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D @ T_c=25^\circ C$	Continuous Drain Current, $V_{GS} @ 10V$	70	A
$I_D @ T_c=100^\circ C$	Continuous Drain Current, $V_{GS} @ 10V$	52	A
I_{DM}	Pulsed Drain Current	320	A
EAS	Single Pulse Avalanche Energy	121	mJ
I_{AS}	Avalanche Current	70	A
$P_D @ T_c=25^\circ C$	Total Power Dissipation	116	W
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	-55 to 150	°C
$R_{\theta JA}$	Thermal Resistance Junction-ambient	62	°C/W
$R_{\theta JC}$	Thermal Resistance Junction-Case	0.85	°C/W



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

Symbol	Parameter	Conditions	Min	Typ	Max	Units
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	70	---	---	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =68V, V _{GS} =0V	---	---	1	μA
I _{GSS}	Gate-Source Leakage Current	V _{GS} =±20V, V _{DS} =0A	---	---	±100	nA
V _{GS(th)}	GATE-Source Threshold Voltage	V _{GS} =V _{DS} , I _D =250μA	2	---	4	V
R _{DS(ON)}	Drain-Source On Resistance ²	V _{GS} =10V, I _D =30A	---	6.6	8.6	mΩ
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, f=1MHz	---	4000	---	pF
C _{oss}	Output Capacitance		---	258	---	
C _{rss}	Reverse Transfer Capacitance		---	225	---	
t _{d(on)}	Turn-On Delay Time	VDD=30V, VGS=10V, RG=6Ω, I _D =20A	---	13	---	ns
t _r	Rise Time		---	90	---	ns
t _{d(off)}	Turn-Off Delay Time		---	43	---	ns
t _f	Fall Time		---	30	---	ns
Q _g	Total Gate Charge	V _{GS} =10V, V _{DS} =30V, I _D =20A	---	33	---	nC
Q _{gs}	Gate-Source Charge		---	8	---	nC
Q _{gd}	Gate-Drain "Miller" Charge		---	7	---	nC
I _s	Continuous Source Current	-	---	---	70	A
I _{SM}	Maximum Pulsed Drain to Source Diode Forward Current	-	---	---	320	A
V _{SD}	Diode Forward Voltage ²	V _{GS} =0V, I _s =80A	---	---	1.2	V
T _{rr}	Reverse Recovery Time	IF=20A, dI/dt=100A/μs, T _J =25°C	---	78	---	ns
Q _{rr}	Reverse Recovery Charge		---	51	---	nC

Notes:

- 1.Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
- 2.EAS condition : T_J=25 °C, VDD=35V, VG=10V, L=0.5mH, R_g=25Ω, I_{AS}=22A
- 3.Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%



Typical Characteristics

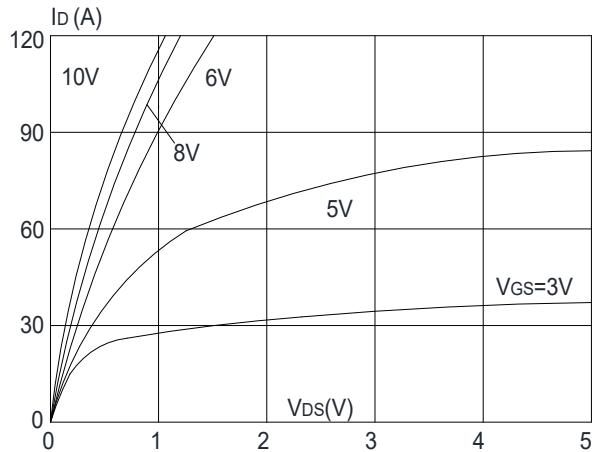


Figure 1: Output Characteristics

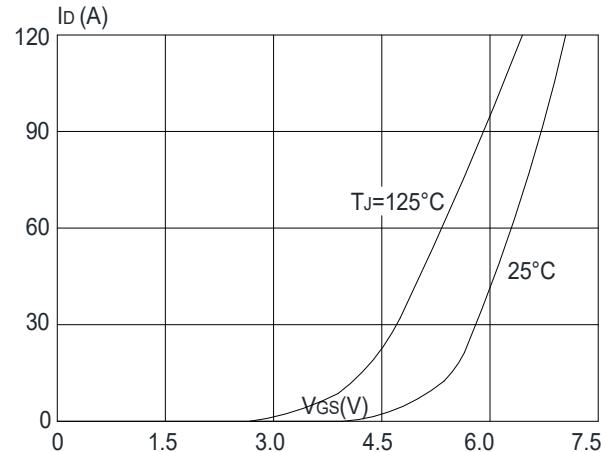


Figure 2: Typical Transfer Characteristics

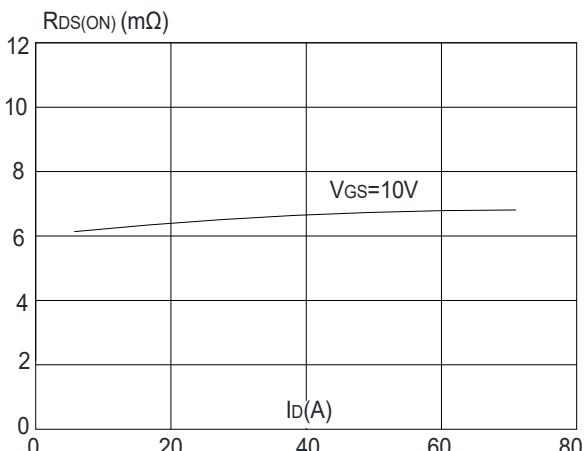


Figure 3: On-resistance vs. Drain Current

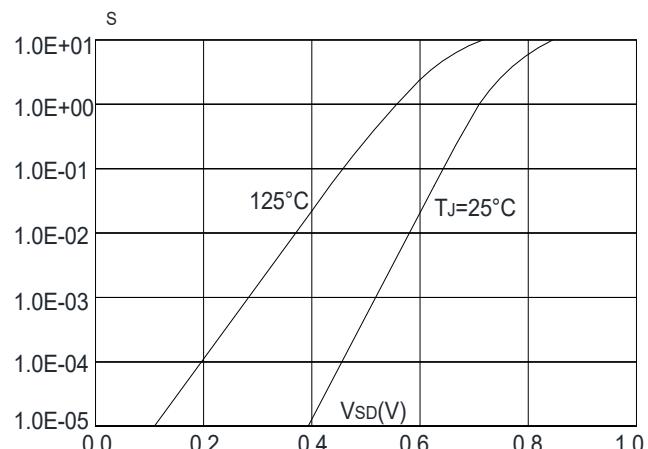


Figure 4: Body Diode Characteristics

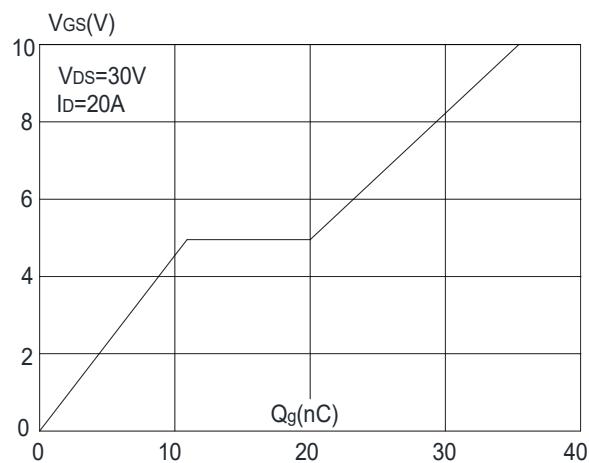


Figure 5: Gate Charge Characteristics

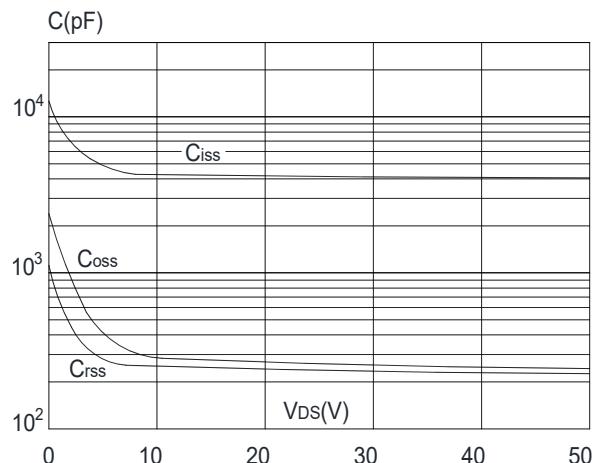


Figure 6: Capacitance Characteristics

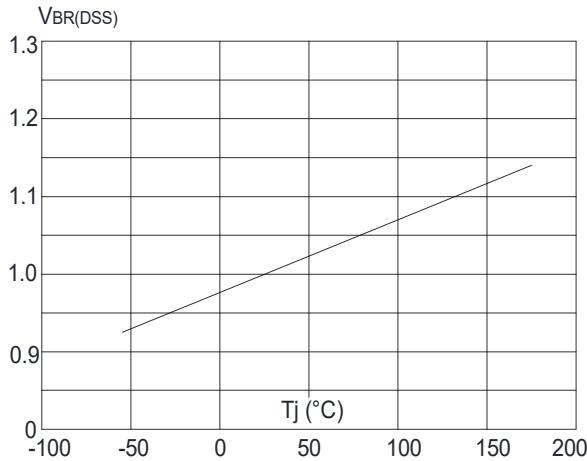


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

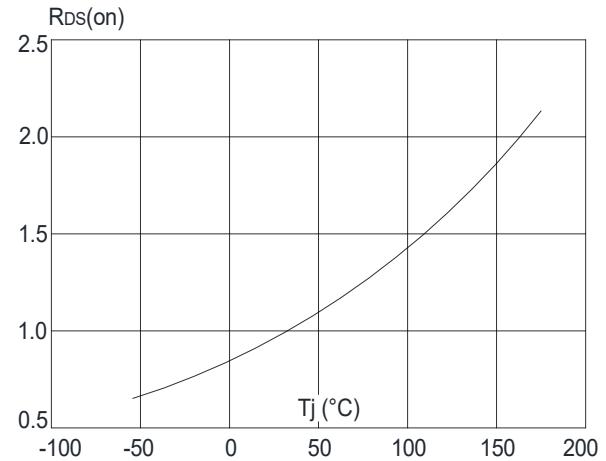


Figure 8: Normalized on Resistance vs. Junction Temperature

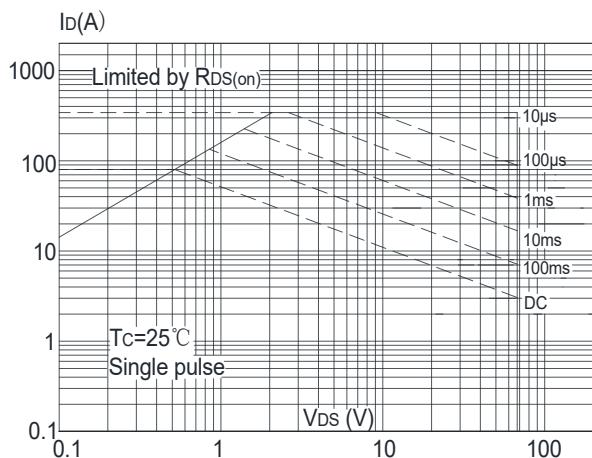


Figure 9: Maximum Safe Operating Area

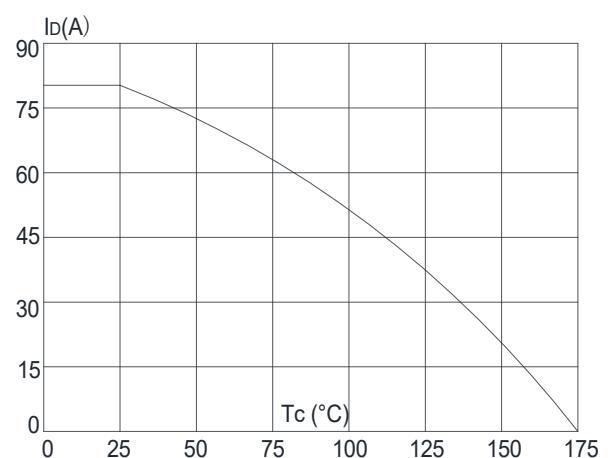


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

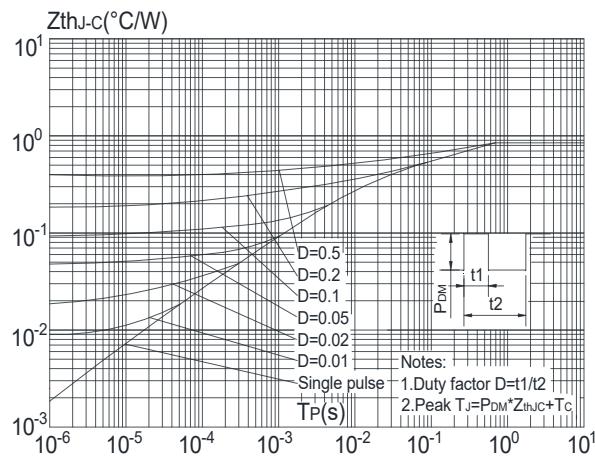
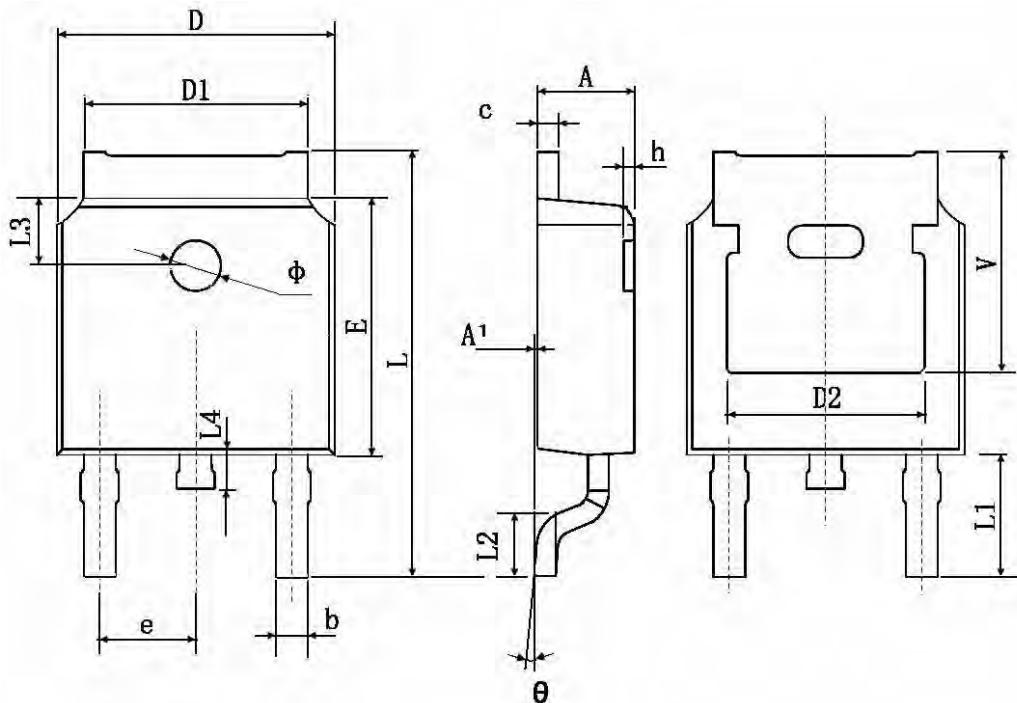


Figure 11: Maximum Effective Transient Thermal Impedance, Junction-to-Case



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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