



HY60N04

N-CHANNEL POWER MOSFET

60A, 40V N-CHANNEL ENHANCEMENT MODE POWER MOSFET

DESCRIPTION

The XD60N04Y uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. It can be used in a wide variety of applications.

FEATURES

- * High density cell design for ultra low $R_{DS(ON)}$
- * Fully characterized Avalanche voltage and current
- * Good stability and uniformity with high EAS
- * Excellent package for good heat dissipation
- * Special process technology for high ESD capability

APPLICATIONS

- * Power switching application
- * Hard switched and high frequency circuits
- * Uninterruptible Power Supply

MARKING



: HY LOGO

XD60N04Y=Device Code

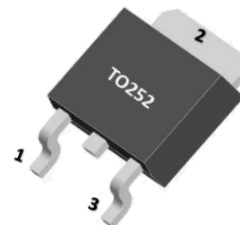
XXXX=Date Code

Solid Dot=Green molding compound

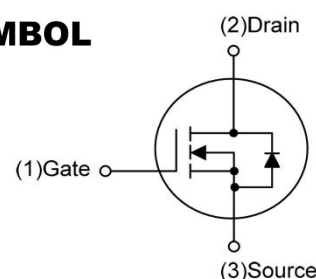
ABSOLUTE MAXIMUM RATINGS($T_A=25^{\circ}\text{C}$, unless otherwise specified.)

SYMBOL	PARAMETER	VALUE	UNIT
V_{DS}	Drain-Source Voltage	40	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Continuous Drain Current	60	A
I_{DM}	Pulsed Drain Current	240	A
EAS	Single Pulsed Avalanche Energy (Note 1)	400	mJ
P_D	Power Dissipation	1.25	W
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	100	$^{\circ}\text{C/W}$
T_j	Junction temperature	+150	$^{\circ}\text{C}$
T_{stg}	Storage temperature	-55~+150	$^{\circ}\text{C}$
T_L	Lead Temperature for Soldering Purposes(1/8" from case for 10s)	260	$^{\circ}\text{C}$

Note: EAS condition: $V_{DD}=20\text{V}$, $L=0.5\text{mH}$, $R_G=25\Omega$, Starting $T_J = 25^{\circ}\text{C}$



SYMBOL





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■ ELECTRICAL CHARACTERISTICS (TA=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	40			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =40V, V _{GS} =0V			1	μA
Gate- Source Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V			±100	nA
ON CHARACTERISTICS (Note 1)						
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250μA	1.2	1.5	2.5	V
Static Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =20A		8	13	mΩ
		V _{GS} =4.5V, I _D =20A		10.5	20	
Forward transconductance	g _{FS}	V _{DS} =10V, I _D =20A	15			S
DYNAMIC CHARACTERISTICS (Note 2)						
Input Capacitance	C _{ISS}	V _{DS} =20V,V _{GS} =0V f= 1.0MHz		1800		pF
Output Capacitance	C _{OSS}			280		pF
Reverse Transfer Capacitance	C _{RSS}			190		pF
SWITCHING CHARACTERISTICS (Note 2)						
Total Gate Charge	Q _G	V _{DS} =20V, V _{GS} = 10V,I _D =20A		29		nC
Gate-Source Charge	Q _{GS}			4.5		nC
Gate-Drain Charge	Q _{GD}			6.4		nC
Turn-On Delay Time	t _{D(ON)}	V _{DD} =20V,I _D =2A,V _{GS} = 10V R _G =3Ω,R _L =1Ω		6.4		ns
Turn-On Rise Time	t _R			17.2		ns
Turn-Off Delay Time	t _{D(OFF)}			29.6		ns
Turn-Off Fall Time	t _F			16.8		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Continuous drain-source diode forward current	I _S				60	A
Drain-Source Diode Forward Voltage (Note 1)	V _{SD}	I _S =20A,V _{GS} =0V			1.2	V
Pulsed drain-source diode forward current	I _{SM}				240	A

Notes:

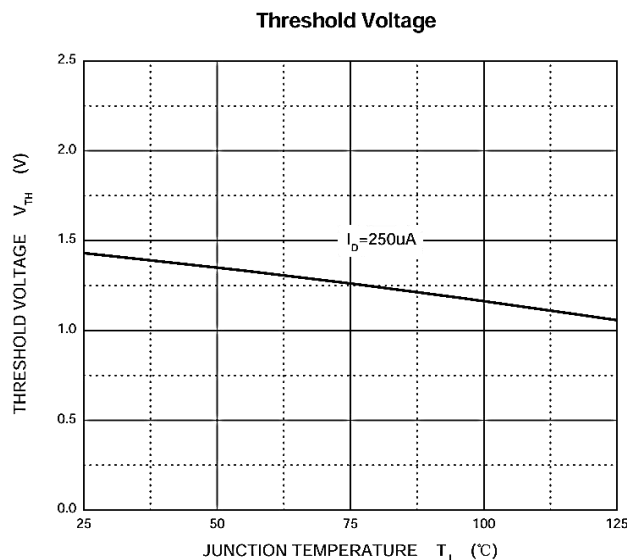
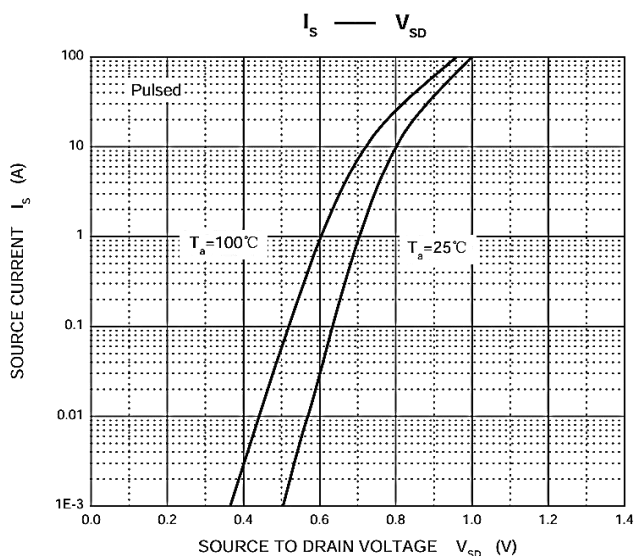
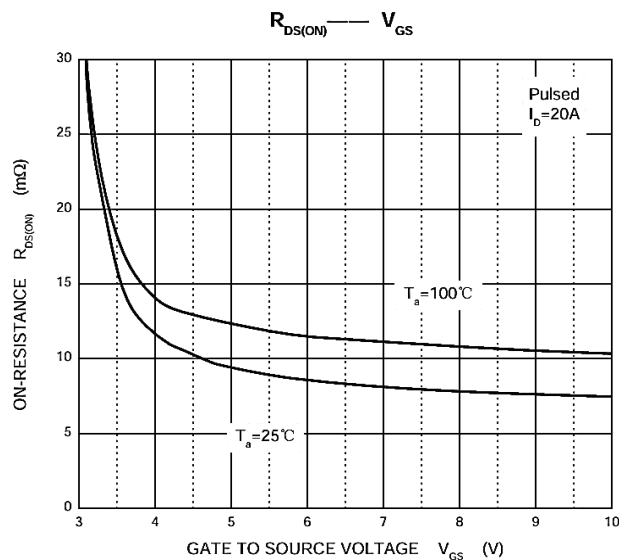
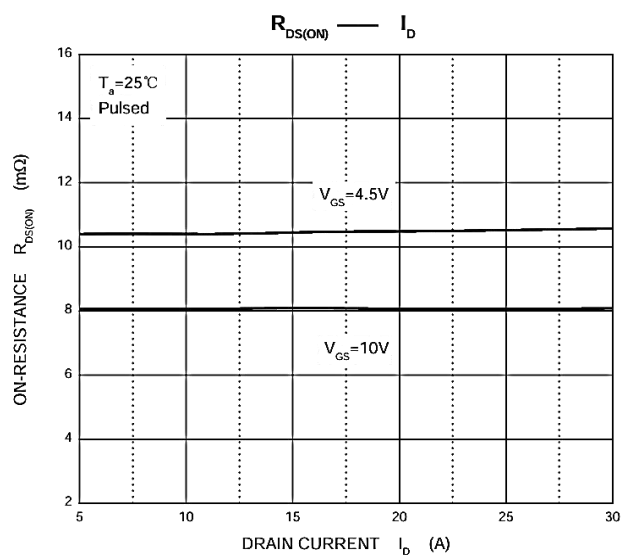
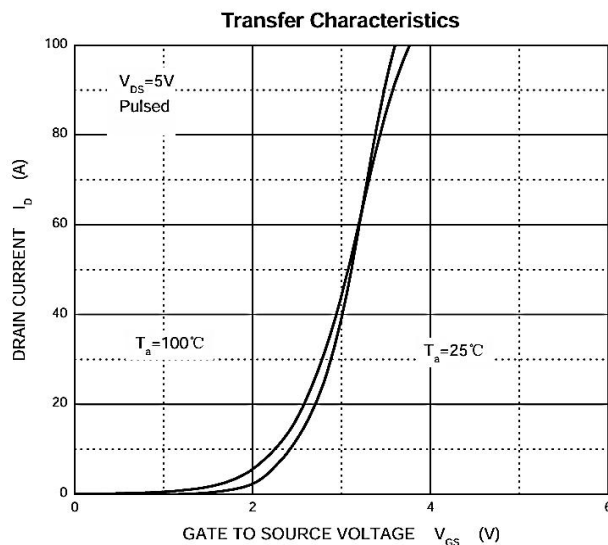
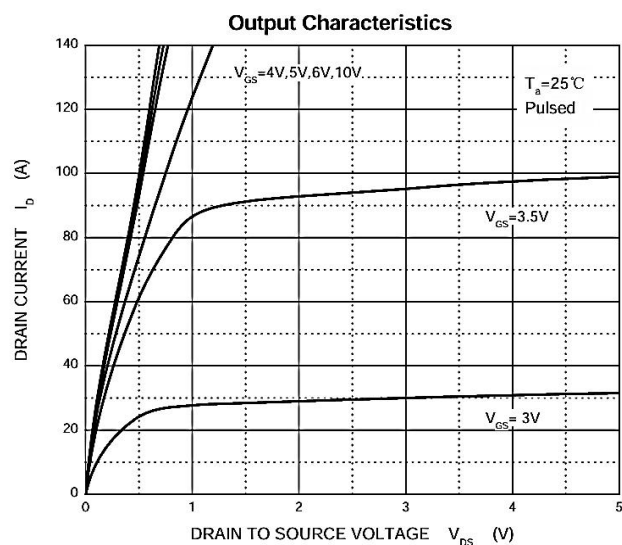
1. Pulse Test : Pulse Width≤300μs, duty cycle ≤2%.
2. Guaranteed by design, not subject to production.



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TYPICAL CHARACTERISTICS

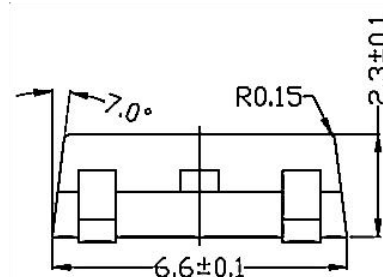
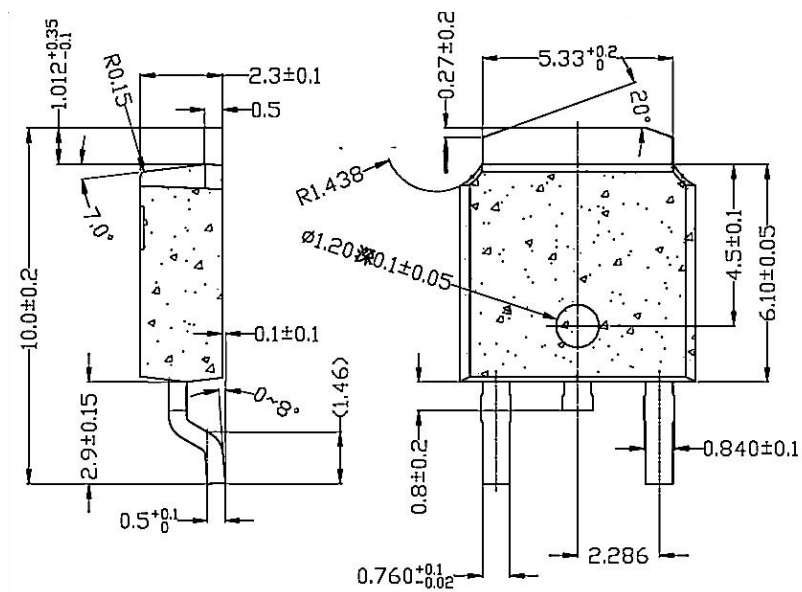




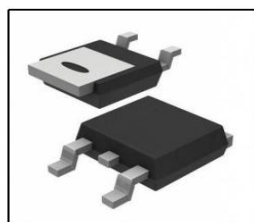
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TO - 252 Package Outline Dimensions



TO - 252 Packing Information



2500PC
S/reel



2 Reel/BOX



Outer box

5 Inner
Box



Inner box

Package version	Reel dimensions $\Phi \times H$ (mm)	Per Reel (pcs)	Reels per box	Inner box dimensions $L \times W \times H$ (mm)	Outer box (pcs)	Outer box dimensions $L \times W \times H$ (mm)
TO-252	$\Phi 330 \times 20$	2500	2	360*340*50	25000	375*375*280