

DESCRIPTION

The STT6601 is the N and P Channel enhancement mode power FET produced using high cell-density, DMOS trench technology. This high density process is especially tailored to minimize on-state resistance and provide superior switching performance. These devices are particularly suited for low voltage applications such as notebook computer power management and other battery-powered circuits where high-side switching, low in-line power loss and resistance to transients are needed.

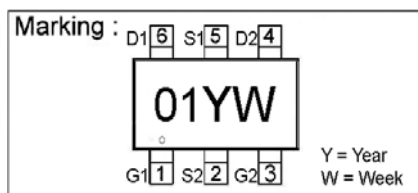
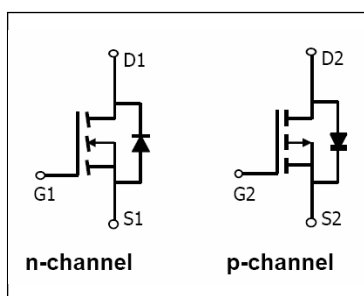
FEATURES

- N-Channel
 - 30V/2.8A, $R_{DS(ON)}$ = 68m Ω @VGS = 10 V
 - 30V/2.3A, $R_{DS(ON)}$ = 78m Ω @VGS = 4.5 V
 - 30V/1.5A, $R_{DS(ON)}$ = 108m Ω @VGS = 2.5 V
- P-Channel
 - 30V/-2.8A, $R_{DS(ON)}$ = 105m Ω @VGS = 10 V
 - 30V/-2.5A, $R_{DS(ON)}$ = 120m Ω @VGS = 4.5 V
 - 30V/-1.5A, $R_{DS(ON)}$ = 150m Ω @VGS = 2.5 V
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- TSOP-6P package design

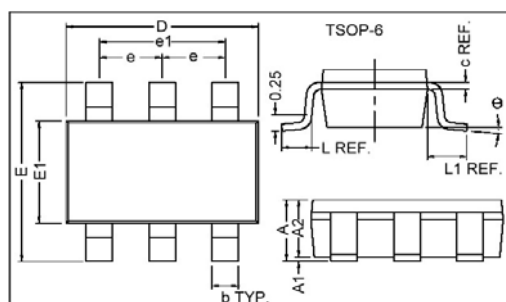
APPLICATIONS

- Battery powered systems
- Portable devices
- Power management in NB
- DC to DC converter, load switch, DSC, LCD display inverter

PACKAGE DIMENSIONS



Week code: A~Z (1~26); a ~ z (27 ~ 52)



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	1.10 Max		L	0.45 Ref	
A1	0	0.10	L1	0.60 Ref	
A2	0.70	1.00		0°	10°
c	0.12 Ref		b	0.30	0.50
D	2.70	3.10	e	0.95 Ref	
E	2.60	3.00	e1	1.90 Ref	
E1	1.40	1.80			

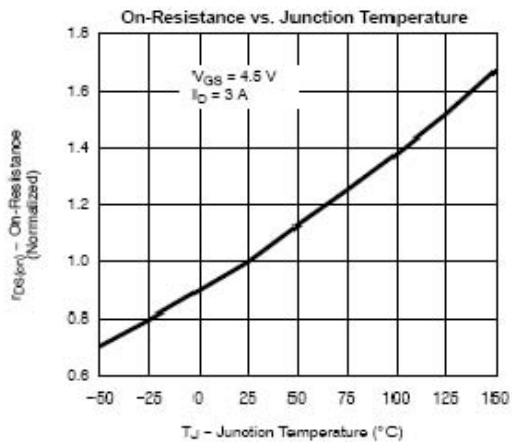
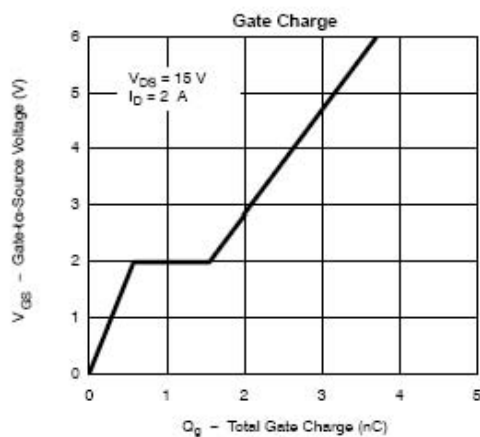
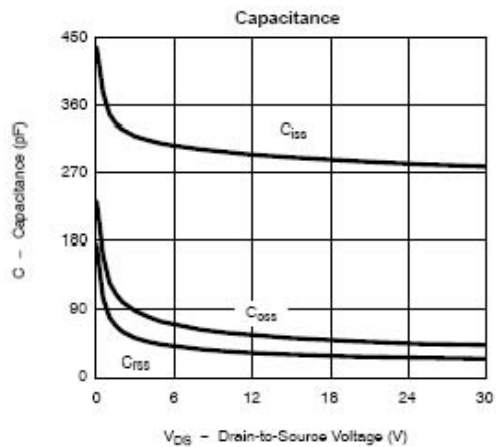
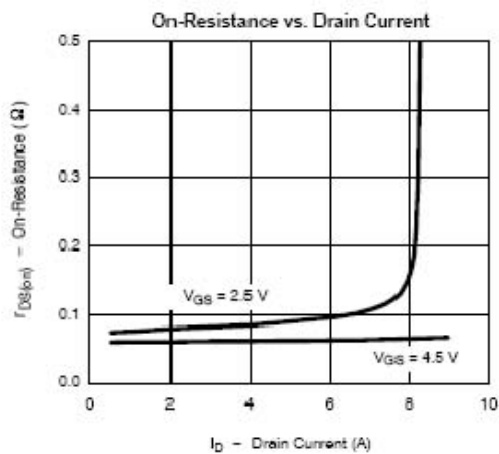
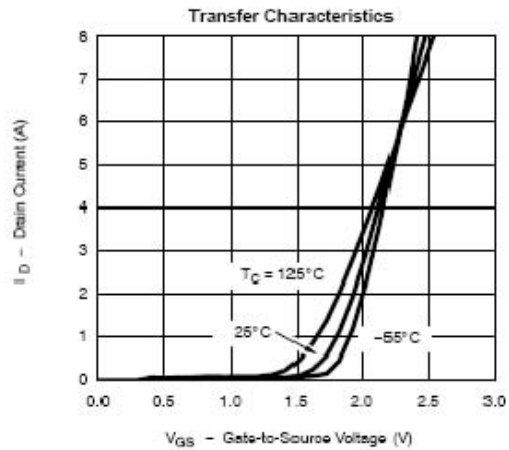
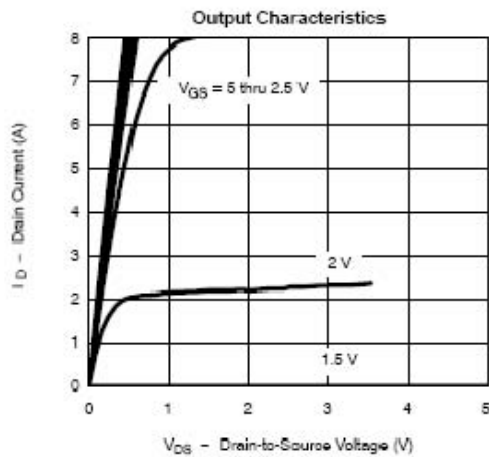
ABSOLUTE MAXIMUM RATINGS

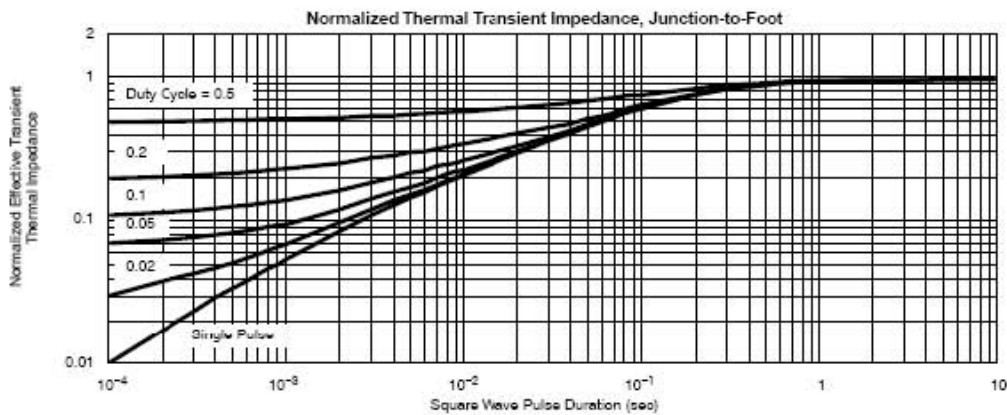
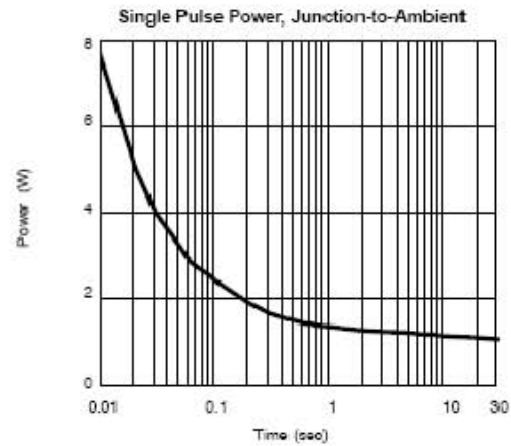
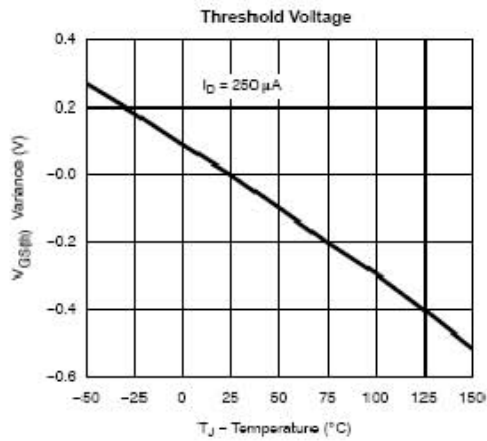
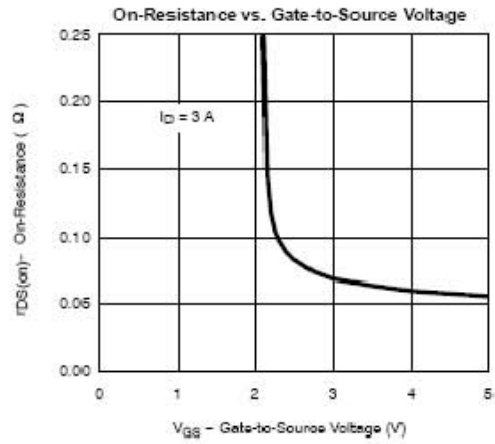
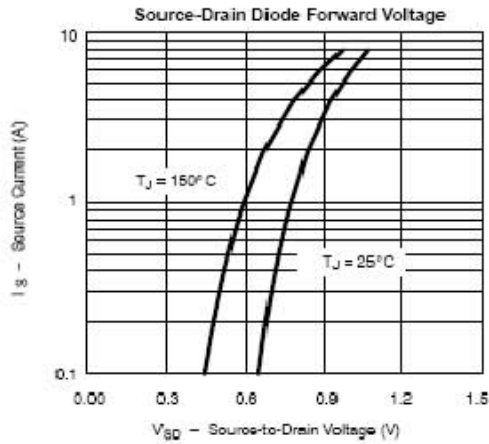
Parameter		Symbol	Ratings		Unit
			N-Channel	P-Channel	
Drain-Source Voltage		V _{DS}	30	-30	V
Gate-Source Voltage		V _{GS}	±12	±12	V
Continuous Drain Current (T _J =150°C)		I _D @T _A =25°C	2.8	-2.8	A
		I _D @T _A =70°C	2.3	-2.1	
Pulsed Drain Current		I _{DM}	10	-8	A
Power Dissipation		P _D @T _A =25°C	1.15		W
		P _D @T _A =70°C	0.75		
Continuous Source Current (Diode Conduction)		I _S	1.25	-1.4	A
Thermal Resistance- Junction to Ambient	T ≤ 10 sec Steady State	RθJA	50	52	°C/W
			90	90	
Operating Junction and Storage Temperature Range		T _j , T _{stg}	-55 ~ +150		°C

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise specified)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Test Conditions	
Drain-Source Breakdown Voltage	N-Ch	BV _{DSS}	30	-	-	V	V _{GS} =0, I _D =250uA	
	P-Ch		-30	-	-		V _{GS} =0, I _D =-250uA	
Gate Threshold Voltage	N-Ch	V _{GS(th)}	0.8	-	1.6	V	V _{DS} =V _{GS} , I _D =250uA	
	P-Ch		-0.4		-1.0		V _{DS} =V _{GS} , I _D =-250uA	
Forward Transconductance	N-Ch	g _{fs}	-	4.6	-	S	V _{DS} =4.5V, I _D =-6.0A	
	P-Ch		-	4	-		V _{DS} =-10V, I _D =-2.8A	
Gate Leakage Current	N-Ch	I _{GSS}	-	-	±100	nA	V _{DS} = 0 V, V _{GS} =±12 V	
	P-Ch		-	-	±100		V _{DS} = 0 V, V _{GS} =±12 V	
Zero Gate Voltage Drain Current (T _J =25°C)	N-Ch	I _{DSS}	-	-	1	uA	V _{DS} =24 V, V _{GS} =0 V	
	P-Ch		-	-	-1		V _{DS} =-24V, V _{GS} =0 V	
	N-Ch		-	-	10		V _{DS} =24V, V _{GS} =0 V, T _J =55°C	
	P-Ch		-	-	-10		V _{DS} =-24V, V _{GS} =0 V, T _J =55°C	
On-State Drain Current	N-Ch	I _{D(on)}	6	-	-	A	V _{DS} ≥ 5V, V _{GS} =10 V	
	P-Ch		-6	-	-		V _{DS} ≤ -5V, V _{GS} = -10 V	
Drain-Source On-Resistance	N-Ch	R _{DS(ON)}	-	0.048	0.068	Ω	V _{GS} =10V, I _D =2.8A	
	P-Ch		-	0.077	0.105		V _{GS} =-10V, I _D =-2.8A	
	N-Ch		-	0.054	0.078		V _{GS} =4.5V, I _D =2.3A	
	P-Ch		-	0.092	0.120		V _{GS} =-4.5V, I _D =-2.5A	
	N-Ch		-	0.079	0.108		V _{GS} =2.5V, I _D =1.5A	
	P-Ch		-	0.118	0.150		V _{GS} =-2.5V, I _D =-1.5A	
Total Gate Charge	N-Ch	Q _g	-	4.2	6	nC	N-Channel V _{DS} =15V, V _{GS} =4.5V, I _D =2.0A P-Channel V _{DS} =-15V, V _{GS} =-4.5V, I _D =-2.0A	
	P-Ch		-	5.8	-			
Gate-Source Charge	N-Ch	Q _{gs}	-	0.6	-			
	P-Ch		-	0.8	-			
Gate-Drain Charge	N-Ch	Q _{gd}	-	1.5	-			
	P-Ch		-	1.5	-			
Turn-on Time	N-Ch	T _{d(on)}	-	2.5	-	ns	N-Channel V _{DD} =15V R _L =10Ω V _{GEN} =10V R _G =3Ω	P-Channel V _{DD} =-15V R _L =15Ω V _{GEN} =-10V R _G =3Ω
	P-Ch		-	6	-			
	N-Ch	T _r	-	2.5	-			
	P-Ch		-	3.9	-			
Turn-off Time	N-Ch	T _{d(off)}	-	20	-			
	P-Ch		-	40	-			
	N-Ch	T _f	-	4	-			
	P-Ch		-	15	-			

CHARACTERISTIC CURVES (N-Channel)





CHARACTERISTIC CURVES (N-Channel)

