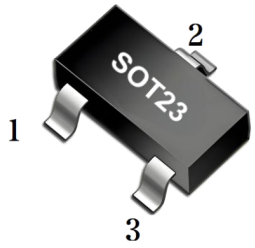
-2.9A, -20V P-CHANNEL ENHANCEMENT MODE POWER MOSFET

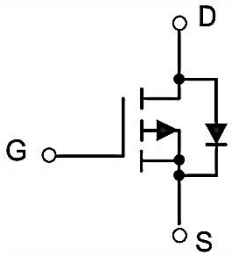
■ DESCRIPTION

The HY2321 uses advanced trench technology to provide excellent RDS(ON), low gate charge and operation with low gate voltages. This device is suitable for use as a load switch or in PWM applications.

The HY2321 meet the ROHS and Green Product requirement with full function reliability approved.



Equivalent Circuit



■ FEATURE

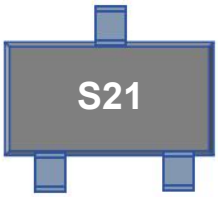
* TrenchFET Power MOSFET

■ APPLICATION

* PA Switch
* Load Switch

■ MARKING

Type Code: Marking: S21



■ ABSOLUTE MAXIMUM RATINGS(TA=25°C, unless otherwise specified.)

SYMBOL	PARAMETER	VALUE	UNIT
VDS	Drain-Source Voltage	-20	V
VGS	Gate Source Voltage	±12	V
ID	Continuous Drain Current	-2.9	A
IDM	Pulsed Drain Current	-12	A
IS	Continuous Source-Drain Diode Current	-0.59	A
PD	Maximum Power Dissipation	0.35	W
TJ	Junction Temperature	150	°C
TSTG	Storage Temperature	-55~150	°C
RθJA	Thermal Resistance From Junction To Ambient	357	°C/W

Notes: Absolute maximum ratings are those values beyond which the device could be permanently damaged.
Absolute maximum ratings are stress ratings only and functional device operation is not implied.

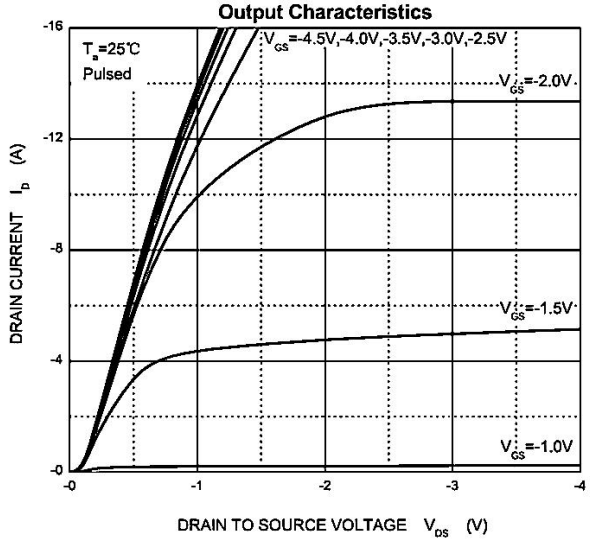
■ ELECTRICAL CHARACTERISTICS (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=-10μA	-20			V
Gate-source threshold voltage	$V_{GS(TH)}$	V_{GS}=V_{DS},I_D=-250μA	-0.4		-0.9	V
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±12V, V_{DS}=0V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-16V, V_{GS}=0V			-1	μA
Drain-source on-state resistance	$R_{DS(ON)}$	V_{GS}=-4.5V, I_D=-3.3A		35	57	mΩ
		V_{GS}=-2.5V,I_D=-2.8A		48	76	
		V_{GS}=-1.8V,I_D=-2.3A		65	110	
Forward Transconductance	gfs	V_{DS}=-5V,I_D=-3.3A	3			S
Diode forward voltage	V_{SD}	I_S=-1.6A, VGS = 0V			-1.2	V
Dynamic						
Input Capacitance(Note1 2)	C_{ISS}	V_{GS}=0V,V_{DS}=-6V,f=1MHz		715		pF
Output Capacitance (Note1 2)	C_{OSS}			170		
Reverse Transfer Capacitance(Note1 2)	C_{RSS}			120		
Total gate charge(Note1)	Qg	V_{DS}=-6V,V_{GS}=-4.5V,I_D=-3.3A			13	nC
Gate-source charge(Note1)	Qgs			1.2		
Gate-drain charge(Note1)	Qgd			2.2		
Switchinga(Note1 2)						
Turn-On Delay Time	td(on)	V_{GEN}=-4.5V, I_D=-1.0A, V_{DD}=-6V, Rg=6Ω,R_L=6Ω			25	ns
Rise Time	tr				55	
Turn-Off Delay Time	td(off)				90	
Fall Time	tf				60	

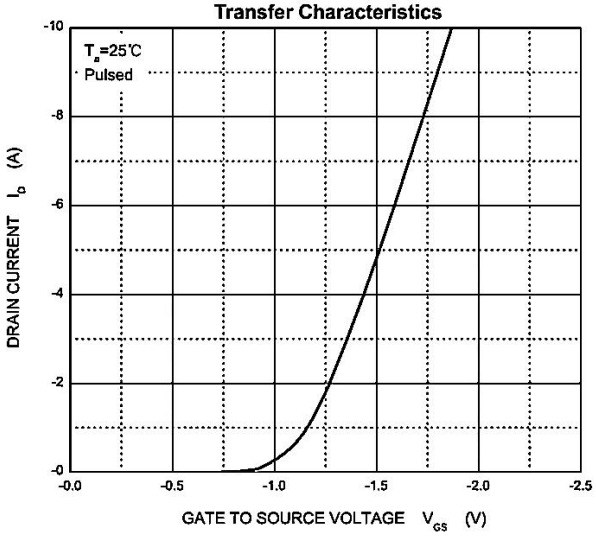
Notes: 1. Pulse Test : Pulse Width ≤ 300μs, Duty Cycle ≤ 2 %.
2.Guaranteed by design, not subject to production testing.

■ TYPICAL CHARACTERISTICS

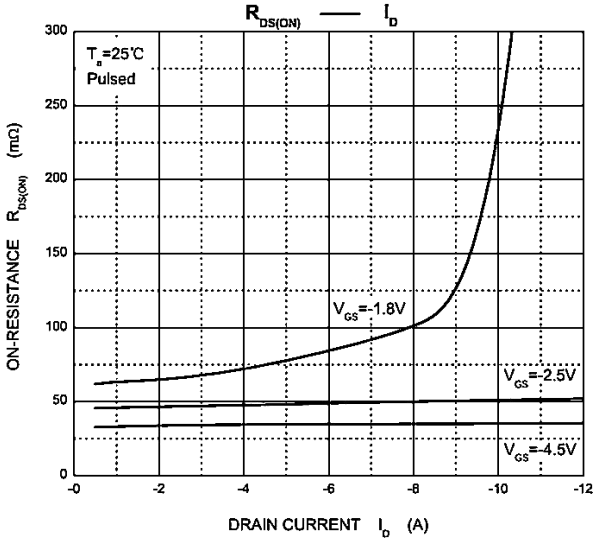
Output Characteristics



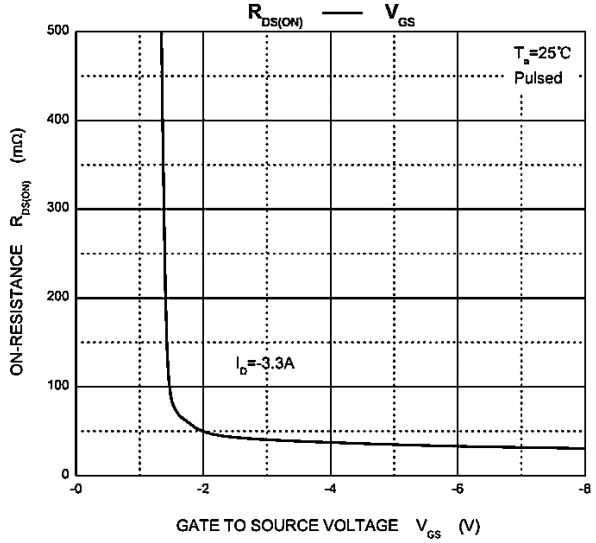
Transfer Characteristics



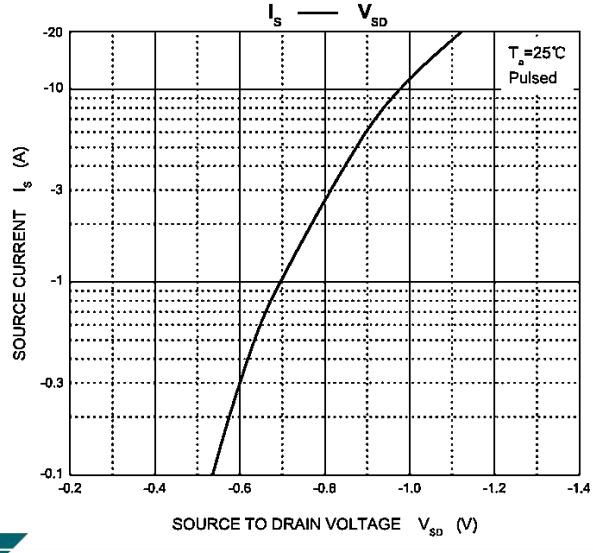
R_DS(ON) — I_D



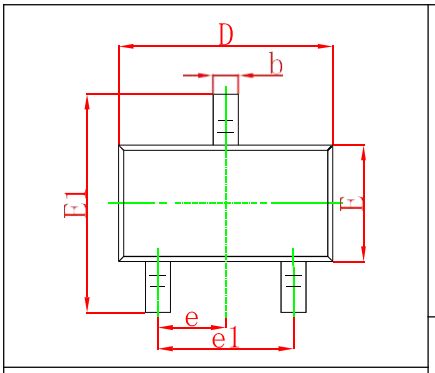
R_DS(ON) — V_GS

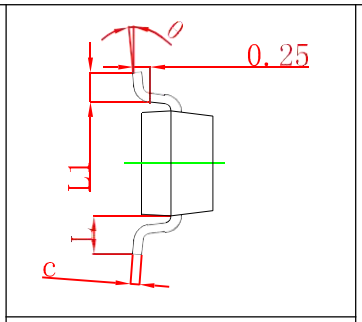


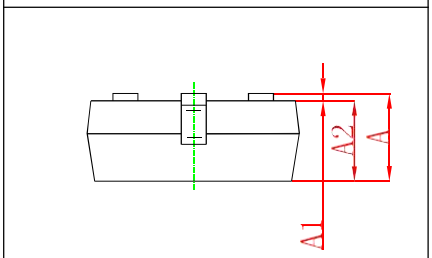
I_S — V_SD

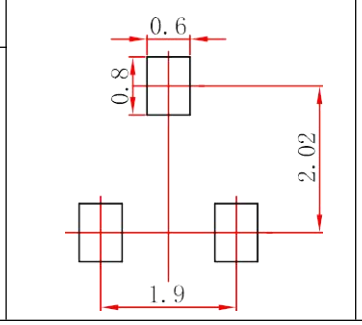


■ SOT23 PACKAGE OUTLINE DIMENSIONS









Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

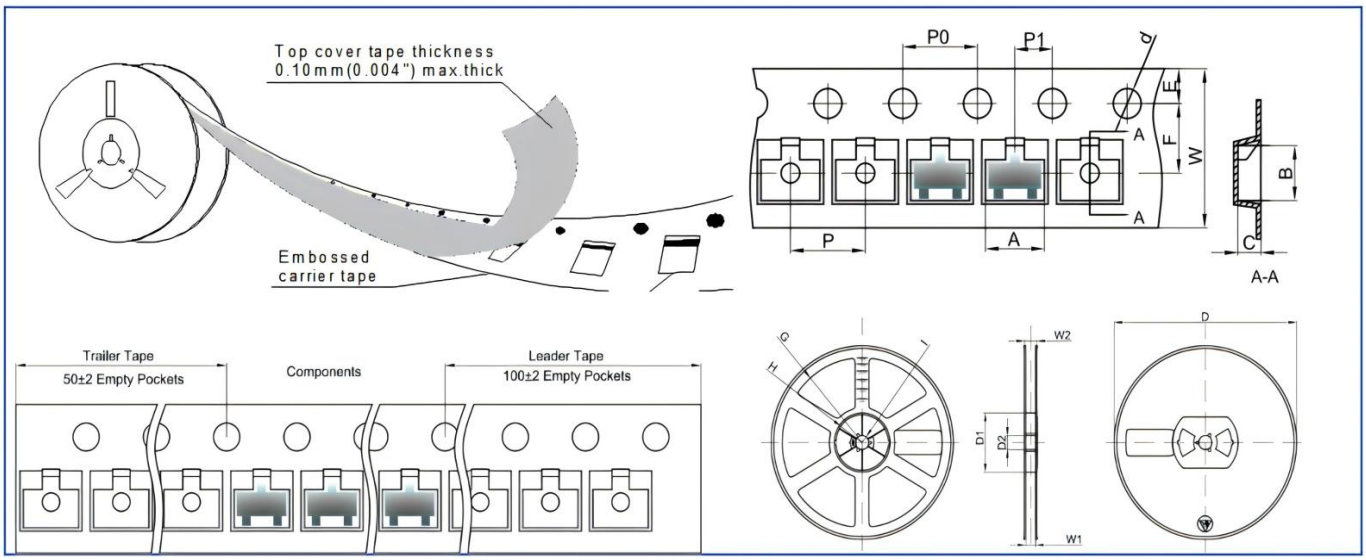
Note:

1.Controlling dimension:in millimeters.

2.General tolerance:±0.05mm.

3.The pad layout is for reference purposes only.

■ REEL PACKING



Dimensions are in millimeter										
PKG TYPE	A	B	C	d	E	F	Po	P	P1	W
SOT-23	3.15	2.77	1.22	Φ1.50	1.75	3.50	4.00	4.00	2.00	8.00
Reel Optiom	D	D1	D2	G	H	I	W1	W2	Q.TY PER REEL	
7" Dia	Φ178.0	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30	3000PCS	
13"Dia	φ330.0	/	13.00	/	/	R6.50	9.50	12.30	10000PCS	