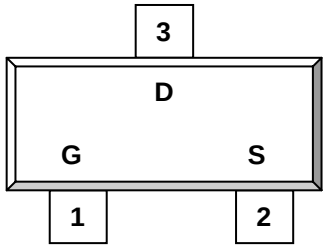
ST2305A

DESCRIPTION

ST2305A is the P-Channel logic enhancement mode power field effect transistor which is produced using high cell density, DMOS trench technology. This high density process is especially tailored to minimize on-state resistance. These devices are particularly suited for low voltage application such as cellular phone and notebook computer power management, other battery powered circuits, and low in-line power loss are required. The product is in a very small outline surface mount package.

PIN CONFIGURATION
SOT-23-3L

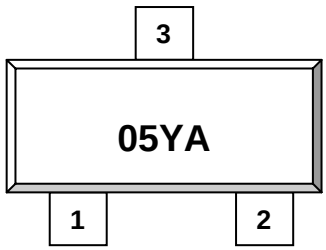


1.Gate 2.Source 3.Drain

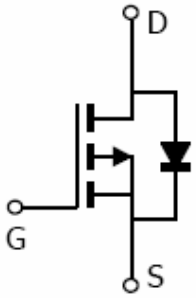
FEATURE

- -15V/-3.5A, $R_{DS(ON)}$ = 45m-ohm (Typ.) @VGS = -4.5V
- -15V/-3.0A, $R_{DS(ON)}$ = 55m-ohm @VGS = -2.5V
- -15V/-2.0A, RDS(ON)= 90m-ohm @VGS=-1.8V
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- SOT-23-3L package design

PART MARKING
SOT-23-3L



Y: Year Code A: Process Code



ORDERING INFORMATION

Part Number	Package	Part Marking
ST2305AS23RG	SOT-23-3L	05YA

※ Process Code : A ~ Z ; a ~ z

※ ST2305AS23RG S : SOT-23-3L ; R : Tape Reel ; G : Pb – Free

ST2305A

ABSOULTE MAXIMUM RATINGS (Ta = 25℃ Unless otherwise noted)

Parameter		Symbol	Typical	Unit
Drain-Source Voltage		V_{DSS}	-15	V
Gate-Source Voltage		V_{GSS}	±12	V
Continuous Drain CurrentTJ=150℃)	T_A=25℃ T_A=70℃	I_D	-3.5 -2.8	A
Pulsed Drain Current		I_{DM}	-10	A
Continuous Source Current (Diode Conduction)		I_S	-1.6	A
Power Dissipation	T_A=25℃ T_A=70℃	P_D	1.25 0.8	W
Operation Junction Temperature		T_J	150	℃
Storgae Temperature Range		T_{STG}	-55/150	℃
Thermal Resistance-Junction to Ambient		$R_{\theta JA}$	120	℃/W

ST2305A

ELECTRICAL CHARACTERISTICS (Ta = 25℃ Unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=-250uA	-15			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=VGS, I_D=-250uA	-0.3		-1.5	V
Gate Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=±12V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-20V, V_{GS}=0V			-1	uA
		V_{DS}=-20V, V_{GS}=0V T_J=55℃			-10	
On-State Drain Current	$I_{D(on)}$	V_{DS}≦-5V, V_{GS}=-4.5V V_{DS}≦-5V, V_{GS}=-2.5V	-6 -3			A
Drain-source On-Resistance	$R_{DS(on)}$	V_{GS}=-4.5V, I_D=-3.5A V_{GS}=-2.5V, I_D=-2.0A V_{GS}=-1.8V, I_D=-2.0A		0.045 0.055 0.09		Ω
Forward Transconductance	g_{fs}	V_{DS}=-5V, I_D=-3.5V		8.5		S
Diode Forward Voltage	V_{SD}	I_S=-1.6A, V_{GS}=0V		-0.8	-1.2	V
Dynamic						
Total Gate Charge	Q_g	V_{DS}=-10V V_{GS}=-4.5V I_D≡-3.5A		10	12	nC
Gate-Source Charge	Q_{gs}			2		
Gate-Drain Charge	Q_{gd}			2		
Input Capacitance	C_{iss}	V_{DS}=-10V V_{GS}=0V F=1MHz		485		pF
Output Capacitance	C_{oss}			90		
Reverse Transfer Capacitance	C_{rss}			40		
Turn-On Time	$t_{d(on)}$	V_{DD}=-10V R_L=6Ω I_D=-1.0A V_{GEN}=-4.5V R_G=6Ω		10	18	nS
	t_r			13	22	
Turn-Off Time	$t_{d(off)}$			18	24	
	t_f			15	20	