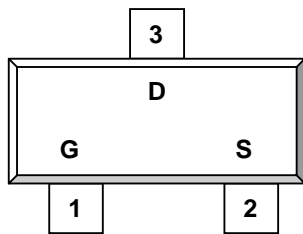


DESCRIPTION

The ST7407 is the P-Channel logic enhancement mode power field effect transistors It is produced using high cell density, DMOS trench technology. This high density process is especially tailored to minimize on-state resistance.

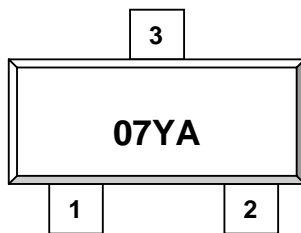
These devices are particularly suited for low voltage application such as cellular phone, notebook computer power management and other battery powered circuits where high-side switching, and low in-line power loss are needed in a very small outline surface mount package.

**PIN CONFIGURATION
SOT-323 (SC-70)**


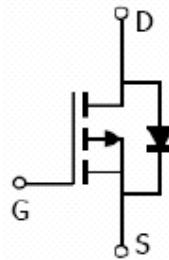
1.Gate 2.Source 3.Drain

FEATURE

- -20V/-3.4A, $R_{DS(ON)} = 100\text{m-ohm}$ @VGS = -4.5V
- -20V/-2.4A, $R_{DS(ON)} = 125\text{m-ohm}$ @VGS = -2.5V
- -20V/-1.8A, $R_{DS(ON)} = 170\text{m-ohm}$ @VGS = -1.8V
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- SOT-323 (SC-70) package design

**PART MARKING
SOT-323 (SC-70)**


Y: Year Code A: Process Code


ORDERING INFORMATION

Part Number	Package	Part Marking
ST7407S32RG	SOT-323	07YA

※ Process Code : A ~ Z ; a ~ z

※ ST7407S32RG S32 : SOT-323 ; R : Tape Reel ; G : Pb – Free

ABSOLUTE MAXIMUM RATINGS (Ta = 25°C Unless otherwise noted)

Parameter	Symbol	Typical	Unit
Drain-Source Voltage	V _{DSS}	-20	V
Gate-Source Voltage	V _{GSS}	±12	V
Continuous Drain Current (T _J =150°C)	I _D	T _A =25°C -2.3	A
		T _A =70°C -1.7	
Pulsed Drain Current	I _{DM}	-6	A
Continuous Source Current (Diode Conduction)	I _S	-1.4	A
Power Dissipation	P _D	T _A =25°C 0.35	W
		T _A =70°C 0.22	
Operation Junction Temperature	T _J	150	°C
Storage Temperature Range	T _{STG}	-55/150	°C
Thermal Resistance-Junction to Ambient	R _{θJA}	120	°C/W

ELECTRICAL CHARACTERISTICS (Ta = 25°C Unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-20			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.35		-0.8	V
Gate Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 12V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-20V, V_{GS}=0V$			-1	uA
		$V_{DS}=-20V, V_{GS}=0V$ $T_J=55^\circ C$			-5.0	
On-State Drain Current	$I_{D(on)}$	$V_{DS}\leq -5V, V_{GS}=-4.5V$	-6			A
		$V_{DS}\leq -5V, V_{GS}=-2.5V$	-3			
Drain-source On-Resistance	$R_{DS(on)}$	$V_{GS}=-4.5V, I_D=-3.4A$		0.090	0.100	Ω
		$V_{GS}=-2.5V, I_D=-2.4A$		0.115	0.125	
		$V_{GS}=-1.8V, I_D=-1.8A$		0.150	0.170	
Forward Transconductance	g_{fs}	$V_{DS}=-5V, I_D=-2.8V$		6.0		S
Diode Forward Voltage	V_{SD}	$I_S=-1.6A, V_{GS}=0V$		-0.8	-1.2	V
Dynamic						
Total Gate Charge	Q_g	$V_{DS}=-6V$ $V_{GS}=-4.5V$ $I_D\equiv -2.8A$		4.8	8.0	nC
Gate-Source Charge	Q_{gs}			1.0		
Gate-Drain Charge	Q_{gd}			1.0		
Input Capacitance	C_{iss}	$V_{DS}=-6.0V$ $V_{GS}=0V$ $F=1MHz$		485		pF
Output Capacitance	C_{oss}			85		
Reverse Transfer Capacitance	C_{rss}			40		
Turn-On Time	$t_{d(on)tr}$	$V_{DD}=-6V$ $R_L=6\Omega$ $I_D=-1.0A$ $V_{GEN}=-4.5V$ $R_G=6\Omega$		10	16	nS
				13	23	
Turn-Off Time	$t_{d(off)tf}$			18	25	
				15	20	

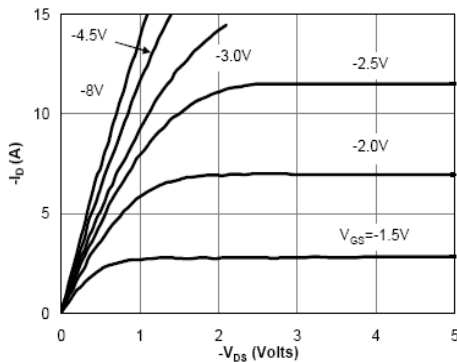
TYPICAL CHARACTERISTICS (25°C Unless noted)


Fig 1: On-Region Characteristics

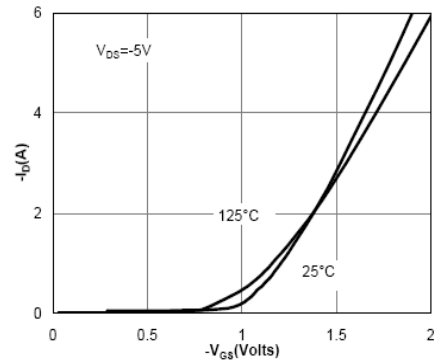


Figure 2: Transfer Characteristics

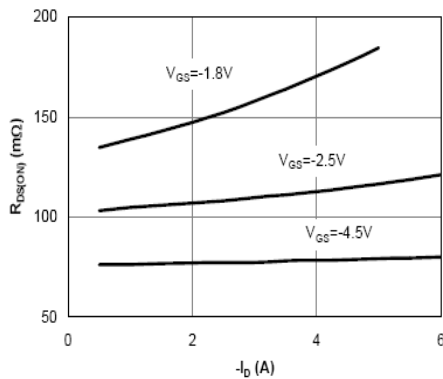


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

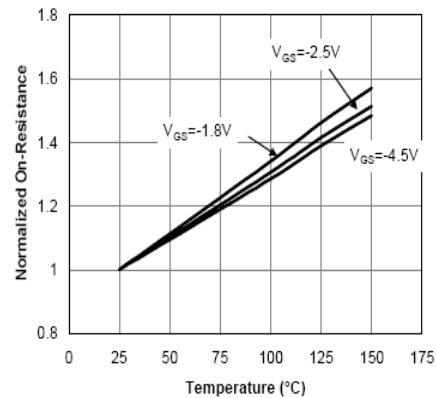


Figure 4: On-Resistance vs. Junction Temperature

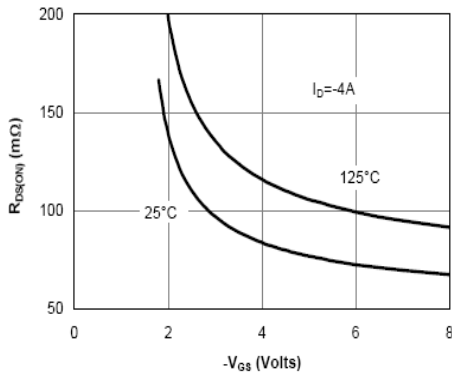


Figure 5: On-Resistance vs. Gate-Source Voltage

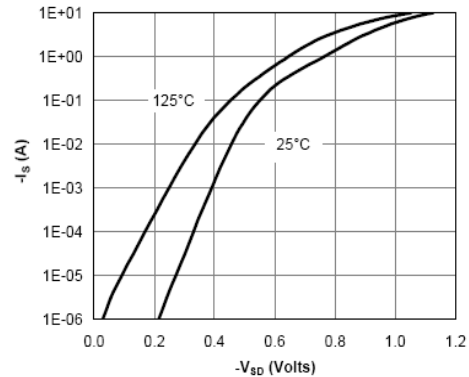



Figure 6: Body-Diode Characteristics

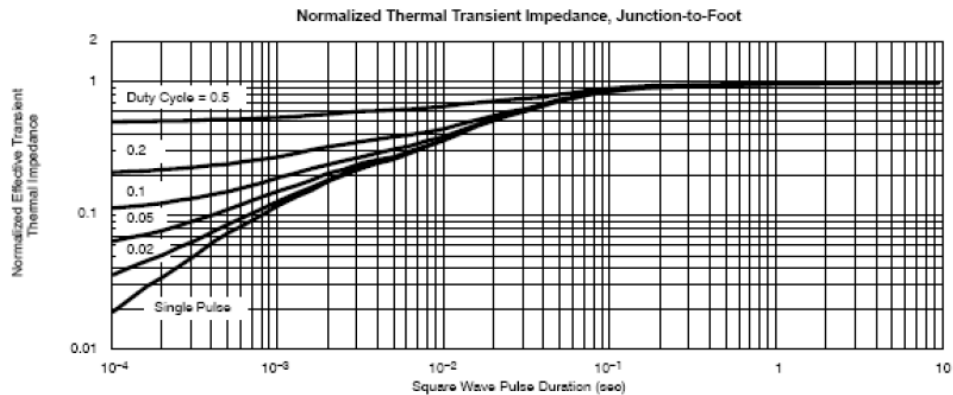
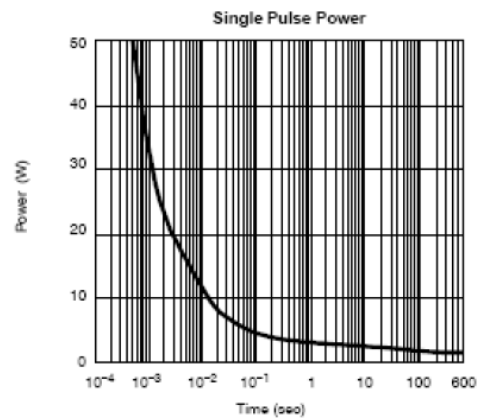
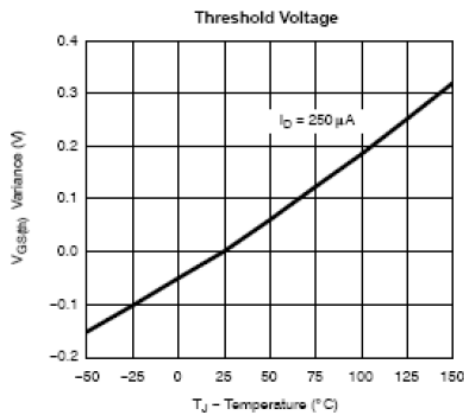
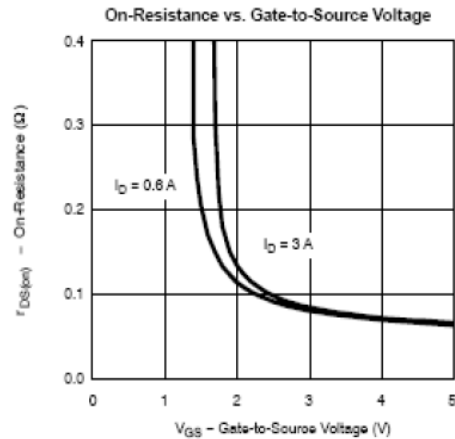
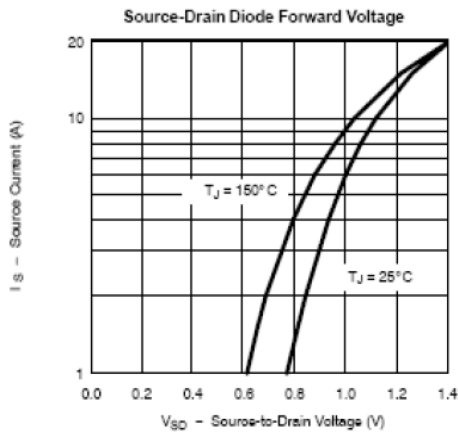


ST7407  Lead-free

P Channel Enhancement Mode MOSFET

-3.4A

TYPICAL CHARACTERISTICS (25°C Unless noted)



SOT-323 (SC-70) PACKAGE OUTLINE
