Elektronische Bauelemente

SMS6405

P-Ch Enhancement Mode Power MOSFET

-3.5 A, -15 V, $R_{DS(ON)}$, 70 mΩ

RoHS Compliant Product
A suffix of "-C" specifies halogen & lead-free

DESCRIPTIONS & FEATURES

- The SMS6405 provides the designer with the best combination of fast switching, low on-resistance and cost-effectiveness.
- The SMS6405 is universally preferred for all commercial-industrial surface mount applications and suited for low voltage applications such as DC/DC converters.

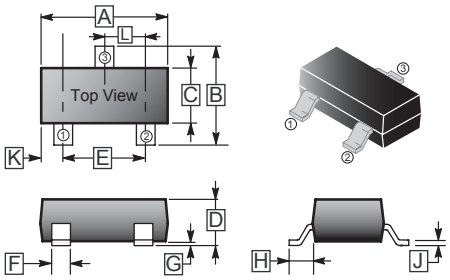
FEATURES

- Super High Dense Cell Design for Extremely Low $R_{DS(ON)}$
- Reliable and Rugged

APPLICATIONS

- Power Management in Notebook Computer
- Portable Equipment
- Battery Powered System.

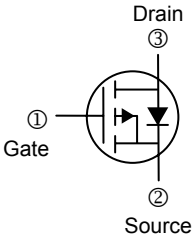
SOT-23



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.70	3.10	G	0.10 REF.	
B	2.25	3.00	H	0.40 REF.	
C	1.20	1.70	J	0.085	0.20
D	0.89	1.40	K	0.45	0.55
E	1.70	2.30	L	0.85	1.15
F	0.35	0.50			

PACKAGE INFORMATION

Weight: 0.07800g



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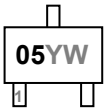


ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	-15	V
Gate-Source Voltage	V_{GS}	±12	V
Continuous Drain Current	I_D @T_A=25℃	-3.5	A
Continuous Drain Current	I_D @T_A=70℃	-2.8	A
Pulsed Drain Current	I_{DM}	-10	A
Power Dissipation	P_D @T_A=25℃	1.25	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 ~ +150	℃
Linear Derating Factor		0.0083	W/℃

THERMAL DATA

Parameter	Symbol	Value	Unit
Thermal Resistance Junction-ambient	$R_{\theta J\text{-}AMB}$	120	℃/W

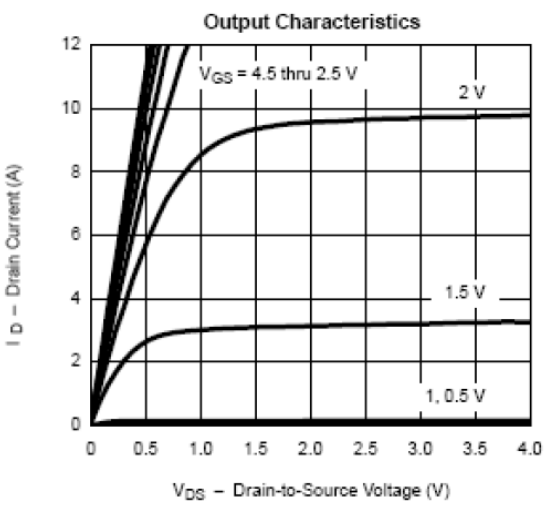
ELECTRICAL CHARACTERISTICS (Tj = 25°C unless otherwise specified)

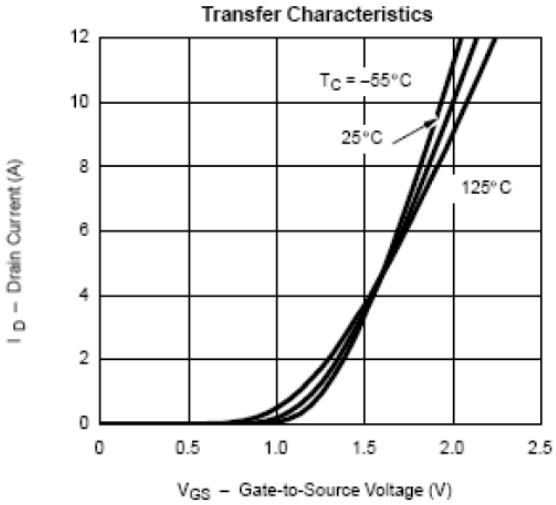
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	BV_{DSS}	-15	-	-	V	V_{GS} = 0, I_D = -250 uA
Gate Threshold Voltage	$V_{GS(th)}$	-0.35	-	-0.85	V	V_{DS} = V_{GS}, I_D = -250 μA
Forward Transconductance	g_{fs}	-	8.5	-	S	V_{DS}=-5.0V, I_D=-3.5A
Gate-Source Leakage Current	I_{GSS}	-	-	±100	nA	V_{GS} = ±10 V
Drain-Source Leakage Current(Tj=25℃)	I_{DSS}	-	-	-1	uA	V_{DS}=-12V, V_{GS}=0
Drain-Source Leakage Current(Tj=55℃)		-	-	-10	uA	V_{DS}=-12V, V_{GS}=0
Static Drain-Source On-Resistance	$R_{DS(ON)}$	-	55	70	mΩ	I_D = -3.5A, V_{GS} = -4.5V
		-	65	85		I_D = -3.0A, V_{GS} = -2.5V
		-	85	105		I_D = -2.0A, V_{GS} = -1.8V
Total Gate Charge	Q_g	-	4.8	8	nC	I_D = -2.8A V_{DS} = -6V V_{GS} = -4.5V
Gate-Source Charge	Q_{gs}	-	1.0	-		
Gate-Drain (“Miller”) Charge	Q_{gd}	-	1.0	-		
Turn-on Delay Time	$T_{d(on)}$	-	10	16	ns	V_{DS} = -6V I_D = -1.0A, V_{GEN} = -4.5V R_G = 6Ω R_L = 6Ω
Rise Time	T_r	-	13	23		
Turn-off Delay Time	$T_{d(off)}$	-	18	25		
Fall Time	T_f	-	15	20		
Input Capacitance	C_{iss}	-	485	-	pF	V_{GS} = 0 V V_{DS} = -6 V f = 1.0 MHz
Output Capacitance	C_{oss}	-	85	-		
Reverse Transfer Capacitance	C_{rss}	-	40	-		

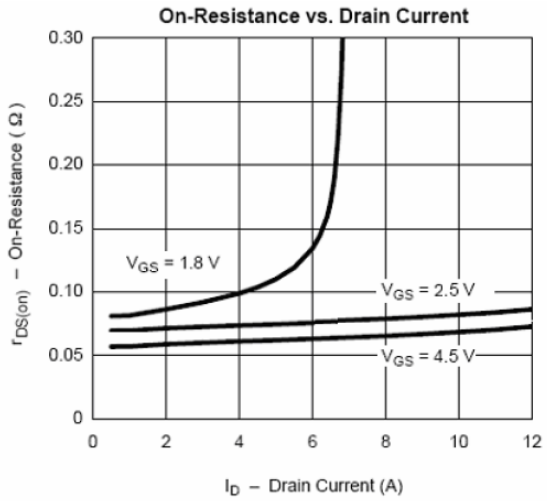
SOURCE-DRAIN DIODE

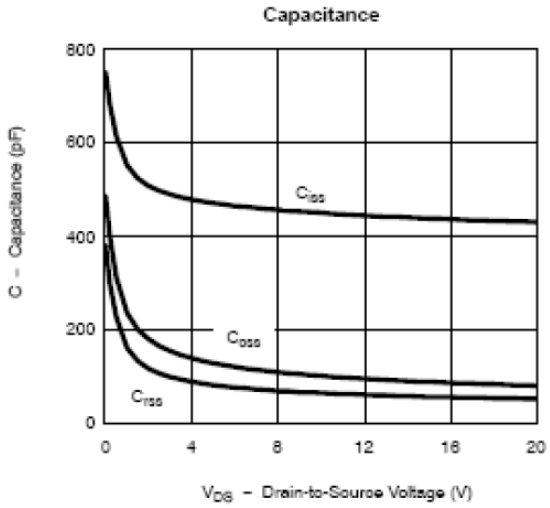
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Forward On Voltage	V_{SD}	-	-	-1.2	V	I_S=-1.5A, V_{GS}=0, Tj=25℃
Reverse Recovery Time	T_{rr}	-	27.7	-	nS	I_S = -4.2A,V_{GS} = 0 dI/dt = 100A/μs
Reverse Recovery Charge	Q_{rr}	-	22	-	nC	

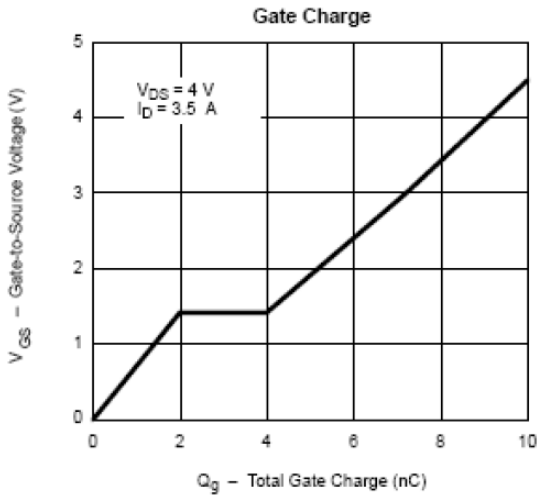
CHARACTERISTIC CURVE

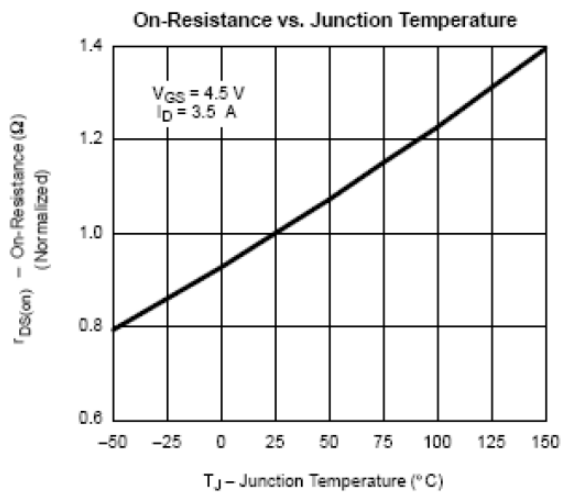












CHARACTERISTIC CURVES (cont'd)