

MAR 6405



Approved by:
Checked by:
Issued by:

SPECIFICATION

"
.....PRODUCT: POWER MOSFET
"

.....MODEL: MAR 6405 SOT23 "

"
"
"
"
"
"
"
"
"
"
"
"
"
"
"
"
"
"
"
"
"
"

HOPE MICROELECTRONIC CO.,LIMITED

MAR6405

P-CHANNEL ENHANCEMENT MODE POWER MOSFET

Description

The 6405 provides the designer with the best combination of fast switching, low on-resistance and cost-effectiveness.

The 6405 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.

Absolute Maximum Ratings

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

Thermal Data

Parameter	Symbol	Ratings	Unit
Thermal Resistance Junction-ambient	R_{thj-a}	120	$^{\circ}C/W$

MAR6405

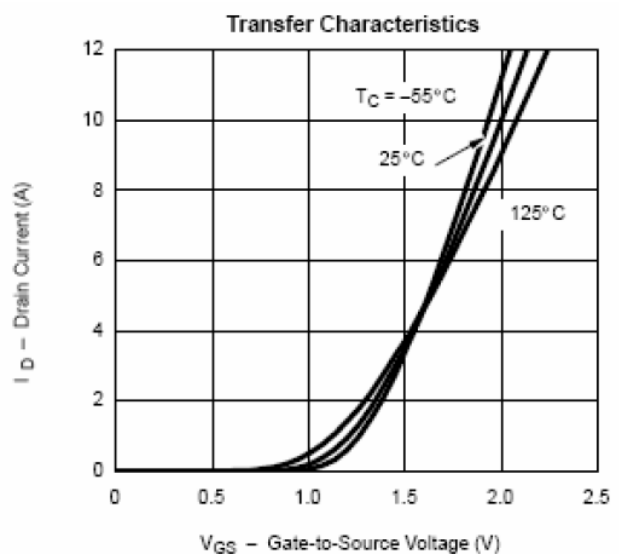
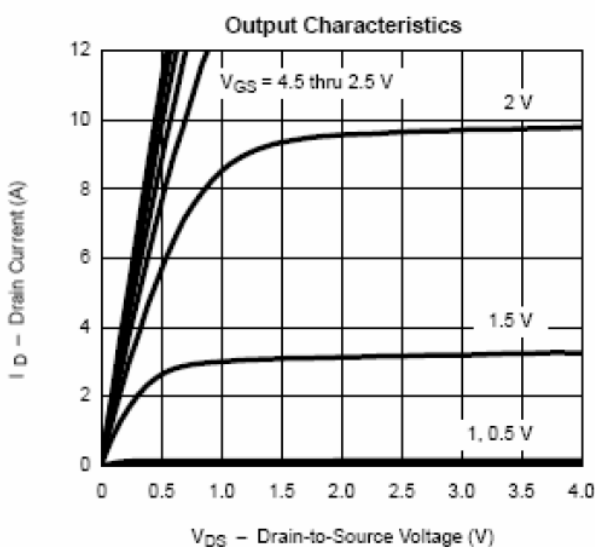
Electrical Characteristics(Tj = 25°C Unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	BV_{DSS}	-15	-	-	V	$V_{GS}=0, I_D=-250\mu A$
Gate Threshold Voltage	$V_{GS(th)}$	-0.35	-	-0.85	V	$V_{DS}=V_{GS}, I_D=-250\mu A$
Forward Transconductance	g_{fs}	-	8.5	-	S	$V_{DS}=-5.0V, I_D=-3.5A$
Gate-Source Leakage Current	I_{GSS}	-	-	± 100	nA	$V_{GS}= \pm 10V$
Drain-Source Leakage Current(Tj=25°C)	I_{DSS}	-	-	-1	μA	$V_{DS}=-12V, V_{GS}=0$
Drain-Source Leakage Current(Tj=55°C)		-	-	-10	μA	$V_{DS}=-12V, V_{GS}=0$
Static Drain-Source On-Resistance	$R_{DS(on)}$	-	55	70	m Ω	$I_D=-3.5A, V_{GS}=-4.5V$
		-	65	85		$I_D=-3.0A, V_{GS}=-2.5V$
		-	85	105		$I_D=-2.0A, V_{GS}=-1.8V$
Total Gate Charge ²	Q_g	-	4.8	8	nC	$I_D=-2.8A$
Gate-Source Charge	Q_{gs}	-	1.0	-		$V_{DS}=-6V$
Gate-Drain ("Miller") Charge	Q_{gd}	-	1.0	-		$V_{GS}=-4.5V$
Turn-on Delay Time ²	$T_{d(on)}$	-	10	16	ns	$V_{DS}=-6V$ $I_D=-1.0A,$ $V_{GEN}=-4.5V$ $R_G=6\Omega$ $R_L=6\Omega$
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	$V_{GS}=0V$ $V_{DS}=-6V$ $f=1.0MHz$
Output Capacitance	C_{oss}	-	85	-		
Reverse Transfer Capacitance	C_{rss}	-	40	-		

Source-Drain Diode

Forward On Voltage ²	V_{SD}	-	-	-1.2	V	$I_S=-1.5A, V_{GS}=0 T_j=25^\circ C$
Reverse Recovery Time	T_{rr}	-	27.7	-	ns	$I_S=-4.2A, V_{GS}=0$ $di/dt=100A/\mu s$
Reverse Recovery Charge	Q_{rr}	-	22	-	nC	

Characteristics Curve



MAR6405

