◆ DESCRIPTION

The MT7403 is the P-Channel logic enhancement mode power field effect transistors are 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 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.

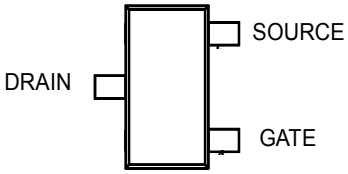
◆ FEATURES

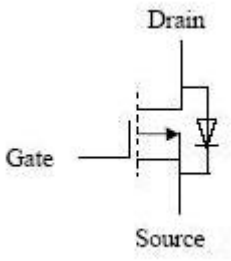
- -20V/-1.4A,RDS(ON)= 115mΩ@VGS=-4.5V
- -20V/-1.2A,RDS(ON)= 215mΩ@VGS=-2.5V
- -20V/-1A,RDS(ON)= 350mΩ@VGS=-1.8V
- Super high density cell design for extremely low RDS (ON)
- Exceptional on-resistance and maximum DC current capability
- SOT-323 (SC–70-3L) package design

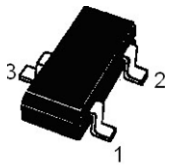
◆ APPLICATIONS

- Power Management in Note
- Portable Equipment
- Battery Powered System
- DC/DC Converter
- Load Switch
- DSC
- LCD Display inverter

◆ PIN CONFIGURATION







◆ ABSOLUTE MAXIMUM RATINGS (Ta=25℃ Unless otherwise noted)

PARAMETER		SYMBOL	MAXIMUM	UNIT
Drain-Source Voltage		V_{DS}	-20	V
Gate-Source Voltage		V_{GS}	±12	V
Continuous Drain Current	Tc= 25℃	I_D	-1.4	A
	Tc= 70℃		-1.1	
Pulsed Drain Current		I_{DM}	-10	A
Power Dissipation	Tc= 25℃	P_D	0.35	W
	Tc= 70℃		0.22	
Operating junction temperature range		T_J	150	°C
Storage temperature range		T_{STG}	- 55 to 150	°C

◆ THERMAL RESISTANCE RATINGS

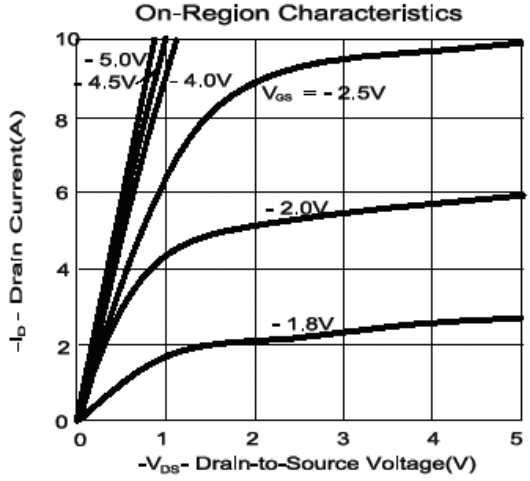
Thermal Resistance	Symbol	Maximum	UNIT
Junction-to-Ambient	$R_{\theta JA}$	360	°C/W

◆ ELECTRICAL CHARACTERISTICS: (Ta= 25℃ Unless Otherwise Noted)

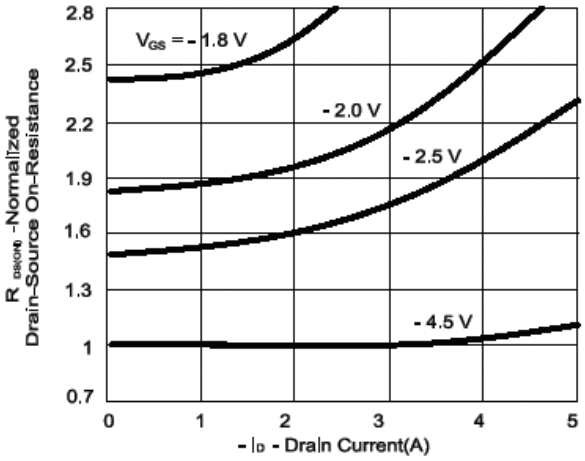
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Static Parameters						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D= -250μA	-20	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D= -250μA	-0.4	-0.8	-1.2	V
Gate Leakage Current	I_{GSS}	V_{DS} = 0V, V_{GS} = ±12 V	-	-	±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -16V, V_{GS} = 0 V	-	-	-1	μA
		V_{DS} = -16V, V_{GS} = 0 V, T_J=125°C	-	-	-10	
Forward Transconductance	g_{fs}	V_{DS} = -5V, I_D= -1.4A	-	7	-	s
On-State Drain Current	$I_{D(ON)}$	V_{DS} =-5V, V_{GS} = -4.5V	-10	-	-	A
Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS} = -4.5V, I_D= -1.4A	-	98	115	mΩ
		V_{GS} = -2.5V, I_D= -1.2A	-	150	215	
		V_{GS} = -1.8V, I_D= -1A	-	250	350	
Diode Forward Voltage	V_{SD}	I_f=-1A,V_{GS}=0V	-	-	-1.0	V
Continuous Current	I_S		-	-	-0.7	A
Pulsed Current	I_{SM}		-	-	-1.4	
Dynamic Parameters						
Input Cap.	C_{iss}	V_{DS} = -10V, V_{GS} = 0V, f=1MHz	-	476	-	pF
Output Cap.	C_{oss}		-	260	-	
Reverse Transfer Cap.	C_{rss}		-	105	-	
Total Gate Charge	Q_g	V_{DS} = -0.5V, V_{GS} = -4.5V, I_D=-1.4A	-	5.63	8.45	nC
Gate-Source Charge	Q_{gs}		-	2.35	-	
Gate-Drain Charge	Q_{gd}		-	1.47	-	
Turn-On Time	$T_{d(on)}$	V_{DD} = -10V, R_G = 6Ω, I_D=-1.0A, V_{GS}=-4.5V	-	11	22	ns
	tr		-	32	55	
Turn-Off Time	$T_{d(off)}$		-	38	68	
	tf		-	32	55	

◆ TYPICAL CHARACTERISTICS

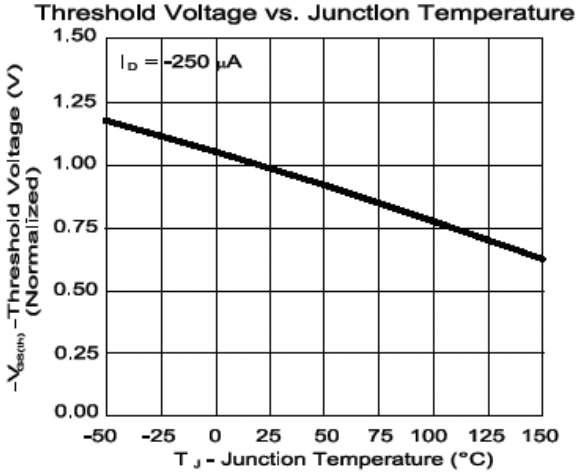
On-Region Characteristics



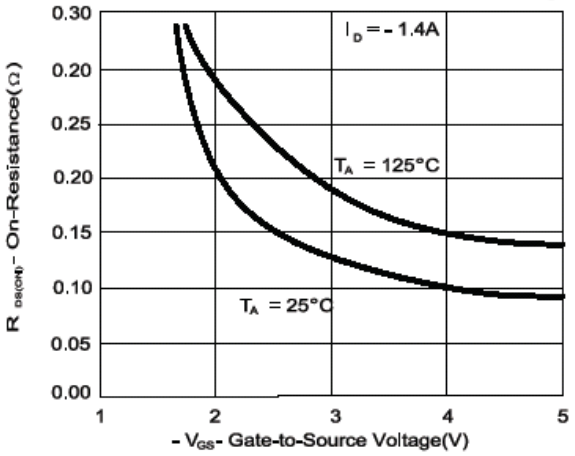
On-Resistance Variation with Drain Current and Gate Voltag



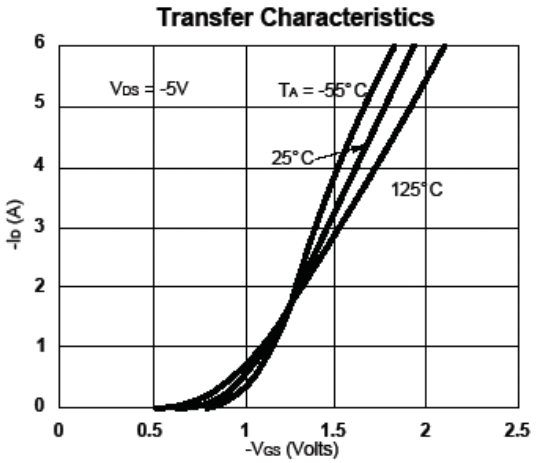
Threshold Voltage vs. Junction Temperature



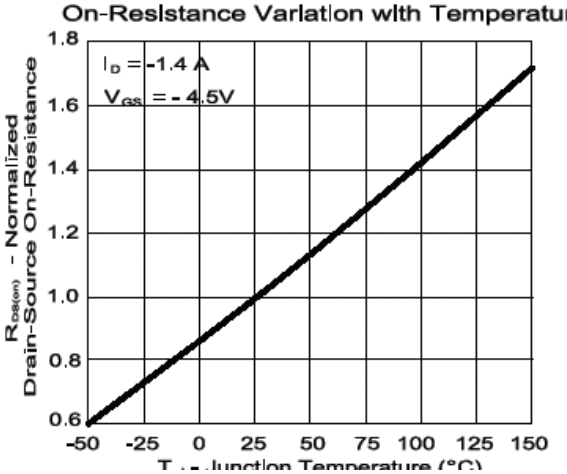
On-Resistance Variation with Gate-to-Source Voltage



Transfer Characteristics

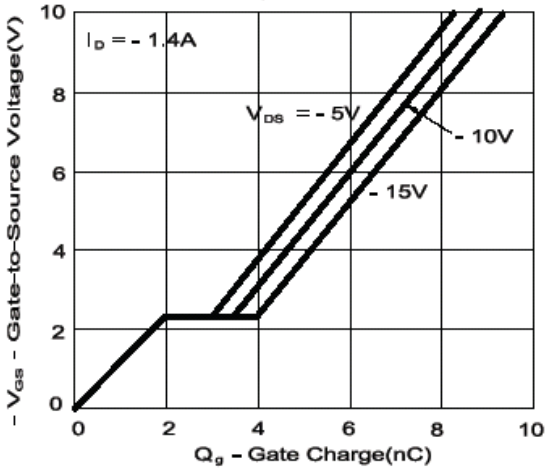


On-Resistance Variation with Temperature

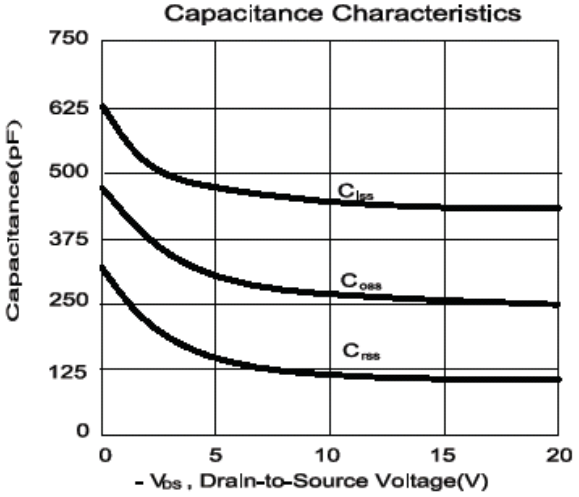


◆ TYPICAL CHARACTERISTICS

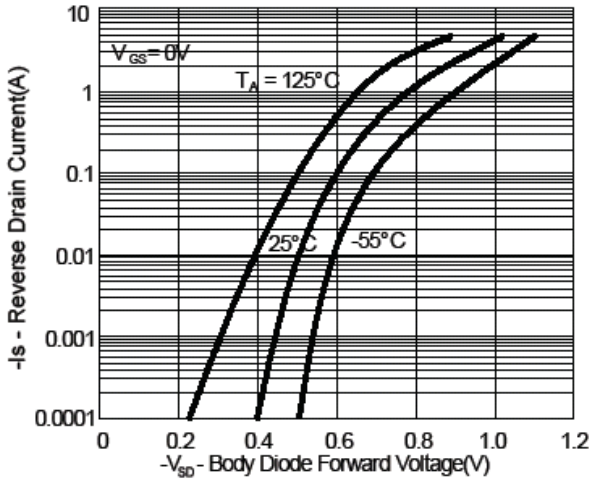
Gate Charge Characteristics



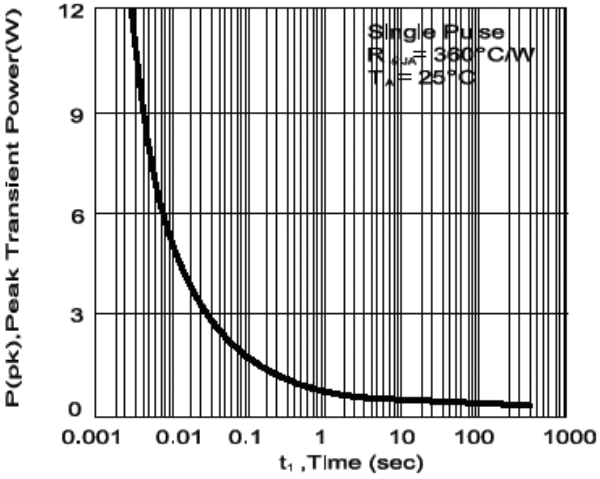
Capacitance Characteristics



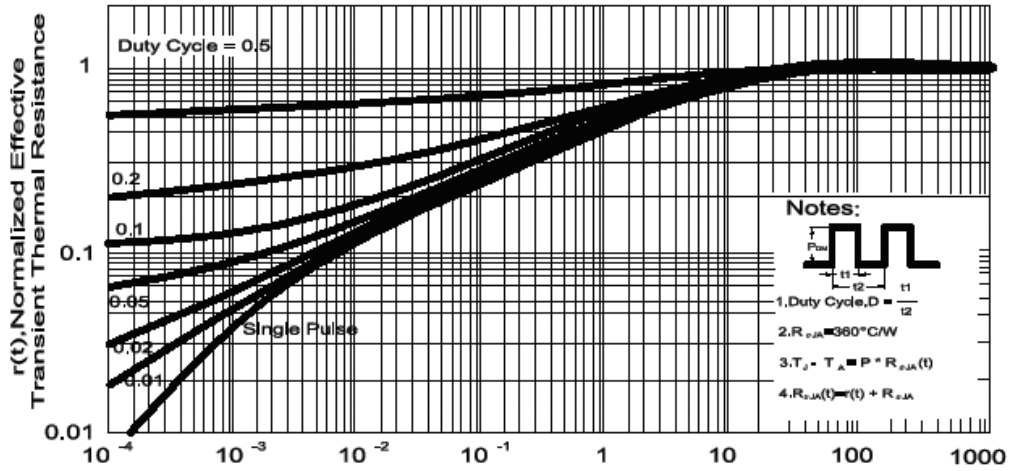
Body Diode Forward Voltage Variation with Source Current and Temperature



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



◆ SOT-323 PACKAGE OUTLINE

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A		0.65		H	0.10		0.25
B	1.80		2.40	I	0.15		0.35
C	1.15		1.35	J			
D	1.80		2.20	K			
E	0.80		1.10	L			
F	0.00		0.10	M			
G	0.25		0.40	N