

GS7407

P-CHANNEL ENHANCEMENT MODE POWER MOSFET

BVDSS	-20V
RDS(ON)	135mΩ
ID	-1.2A

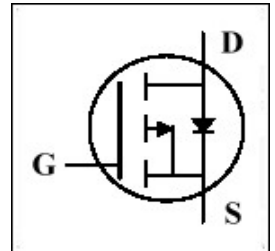
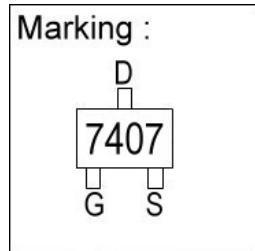
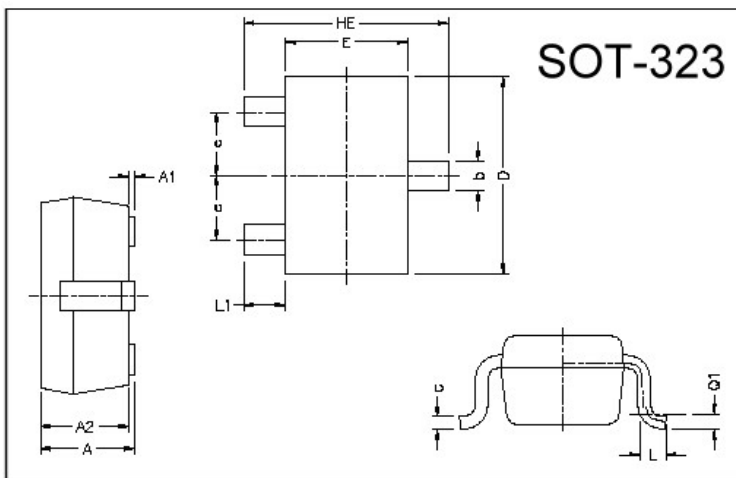
Description

The GS7407 uses advanced trench technology to provide excellent on-resistance extremely efficient and cost-effectiveness device. This device is suitable for use as a load switch or in PWM application. The GS7407 is universally used for all commercial-industrial applications.

Features

- * Lower Gate Charge
- * Small Package Outline
- * RoHS Compliant

Package Dimensions



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	0.80	1.10	L1	0.42 REF.	
A1	0	0.10	L	0.15	0.35
A2	0.80	1.00	b	0.25	0.40
D	1.80	2.20	c	0.10	0.25
E	1.15	1.35	e	0.65 REF.	
HE	1.80	2.40	Q1	0.15 BSC.	

Absolute Maximum Ratings

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	±8	V
Continuous Drain Current ³	$I_D @TA=25^{\circ}C$	-1.2	A
Continuous Drain Current ³	$I_D @TA=70^{\circ}C$	-1.0	A
Pulsed Drain Current ^{1,2}	I_{DM}	-10	A
Total Power Dissipation	$P_D @TA=25^{\circ}C$	0.35	W
Linear Derating Factor		0.0028	W/°C
Operating Junction and Storage Temperature Range	T_j, T_{stg}	-55 ~ +150	°C

Thermal Data

Parameter	Symbol	Value	Unit
Thermal Resistance Junction-ambient ³ Max.	R_{thj-a}	360	°C/W

Electrical Characteristics (T_j = 25°C unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	BV _{DSS}	-20	-	-	V	V _{GS} =0, I _D =-250uA
Gate Threshold Voltage	V _{GS(th)}	-0.3	-	-1.0	V	V _{DS} =V _{GS} , I _D =-250uA
Forward Transconductance	g _{fs}	-	7	-	S	V _{DS} =-5V, I _D =-3A
Gate-Source Leakage Current	I _{GSS}	-	-	±100	nA	V _{GS} = ±8V
Drain-Source Leakage Current(T _j =25°C)	I _{DSS}	-	-	-1	uA	V _{DS} =-16V, V _{GS} =0
Drain-Source Leakage Current(T _j =55°C)		-	-	-5	uA	V _{DS} =-16V, V _{GS} =0
Static Drain-Source On-Resistance	R _{DS(ON)}	-	-	135	mΩ	V _{GS} =-4.5V, I _D =-1.2A
		-	-	170		V _{GS} =-2.5V, I _D =-1.0A
		-	-	220		V _{GS} =-1.8V, I _D =-1.0A
Total Gate Charge ²	Q _g	-	6.2	-	nC	I _D =-1.0A V _{DS} =-10V V _{GS} =-4.5V
Gate-Source Charge	Q _{gs}	-	0.54	-		
Gate-Drain ("Miller") Charge	Q _{gd}	-	1.44	-		
Turn-on Delay Time ²	T _{d(on)}	-	12	-	ns	V _{DS} =-10V V _{GS} =-4.5V R _G =3Ω R _L =15Ω
Rise Time	T _r	-	10.7	-		
Turn-off Delay Time	T _{d(off)}	-	74	-		
Fall Time	T _f	-	28.7	-		
Input Capacitance	C _{iss}	-	540	-	pF	V _{GS} =0V V _{DS} =-10V f=1.0MHz
Output Capacitance	C _{oss}	-	72	-		
Reverse Transfer Capacitance	C _{rss}	-	49	-		
Gate Resistance	R _g	-	12	-	Ω	f=1.0MHz

Source-Drain Diode

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Forward On Voltage ²	V _{SD}	-	-	-1.0	V	I _S =-1.0A, V _{GS} =0V
Reverse Recovery Time ²	T _{rr}	-	24.5	-	ns	I _S =-1A, V _{GS} =0V di/dt=100A/μs
Reverse Recovery Charge	Q _{rr}	-	17.4	-	nC	
Continuous Source Current (Body Diode)	I _S	-	-	-0.6	A	V _D =V _G =0V, V _S =-1.0V

Notes: 1. Pulse width limited by Max. junction temperature.

2. Pulse width ≤ 300us, duty cycle ≤ 2%.

3. Surface mounted on FR4 board, t ≤ 10sec.

Characteristics Curve

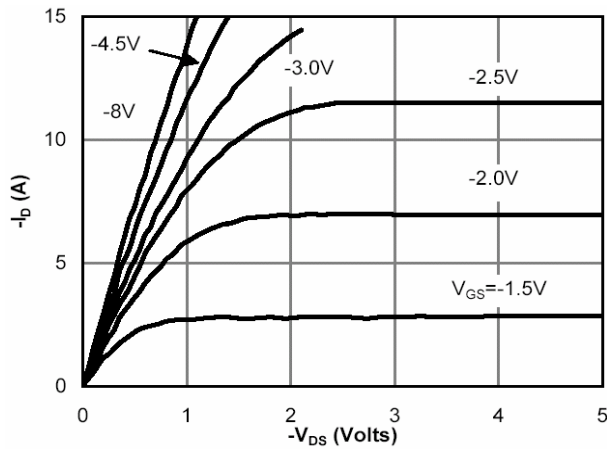


Fig 1. Typical Output Characteristics

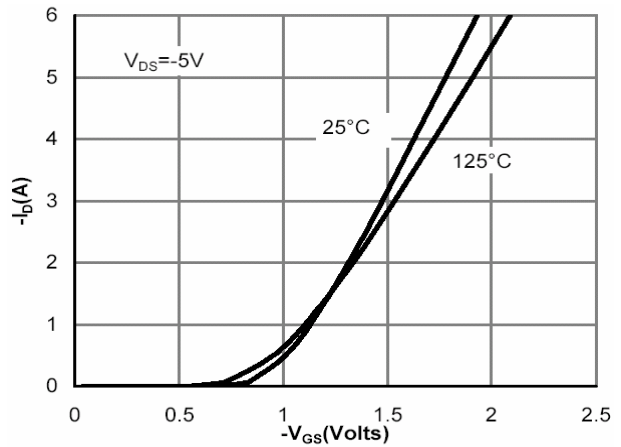


Fig 2. Transfer Characteristics

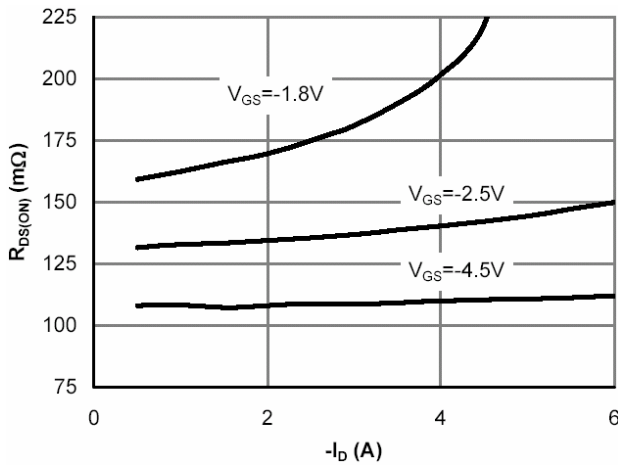


Fig 3. On-Resistance v.s. Drain Current and Gate Voltage

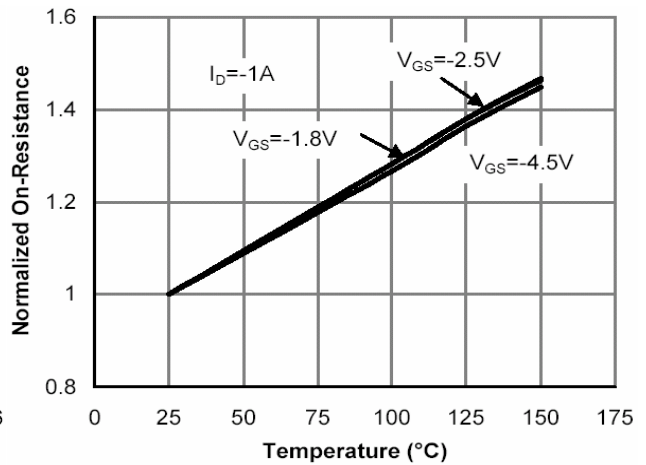


Fig 4. On-Resistance v.s. Junction Temperature

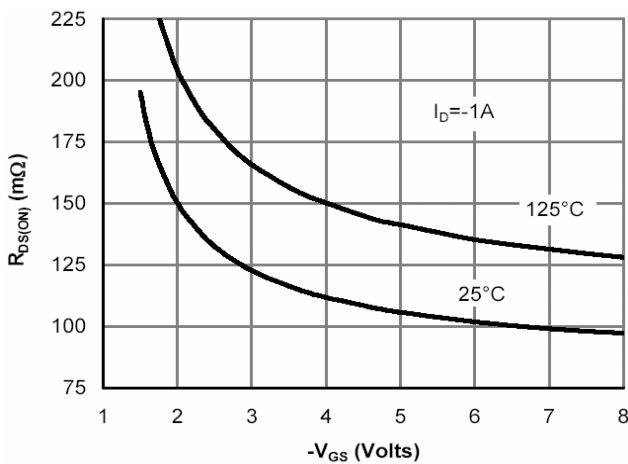


Fig 5. On-Resistance v.s. Gate-Source Voltage

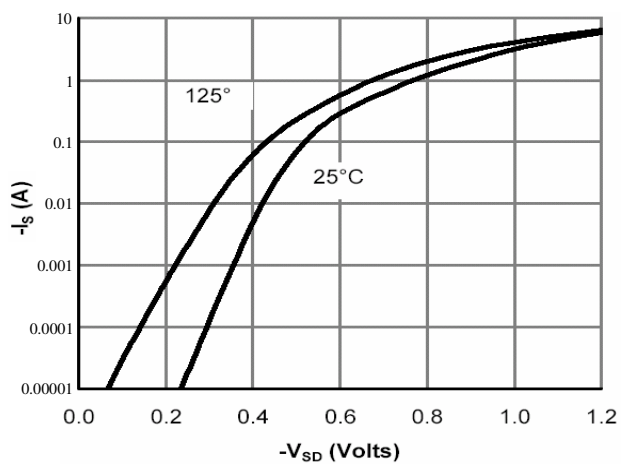


Fig 6. Body Diode Characteristics

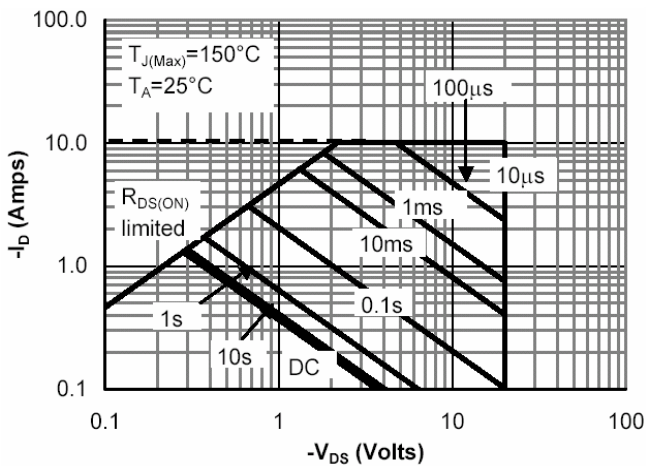


Fig 7. Maximum Safe Operating Area

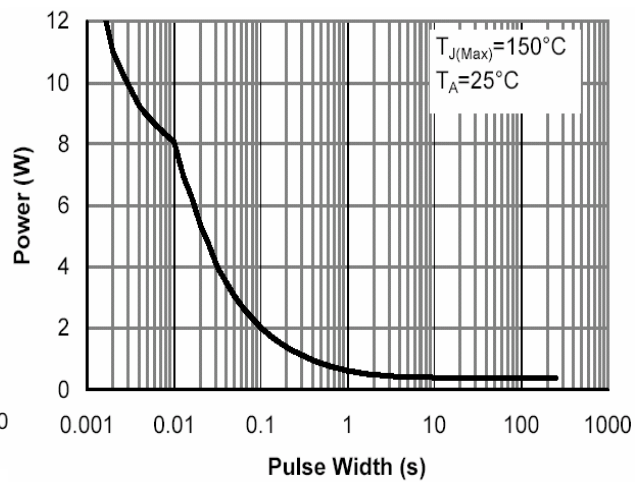


Fig 8. Single Pulse Power Rating Junction-to-Ambient

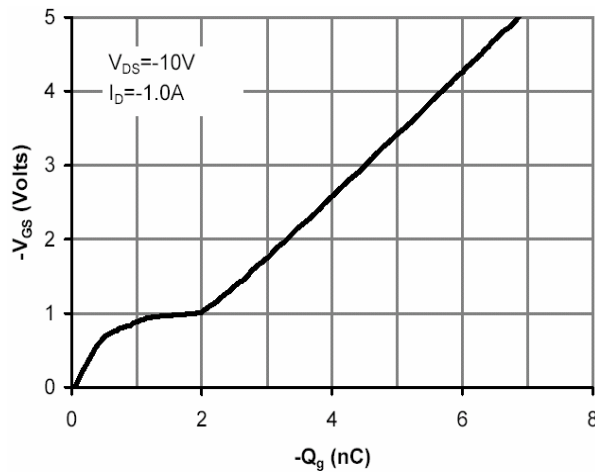


Fig 9. Gate Charge Characteristics

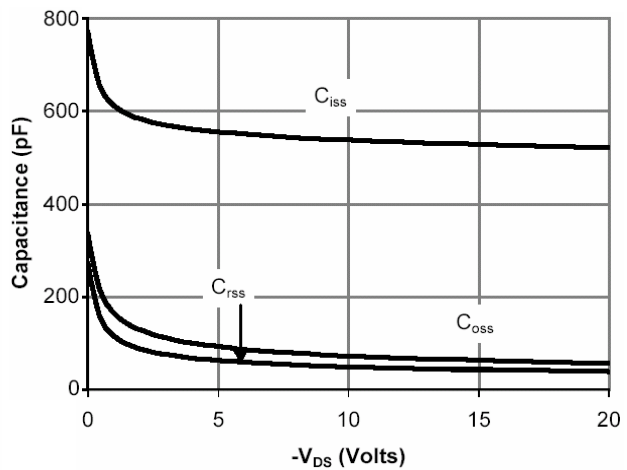


Fig 10. Typical Capacitance Characteristics

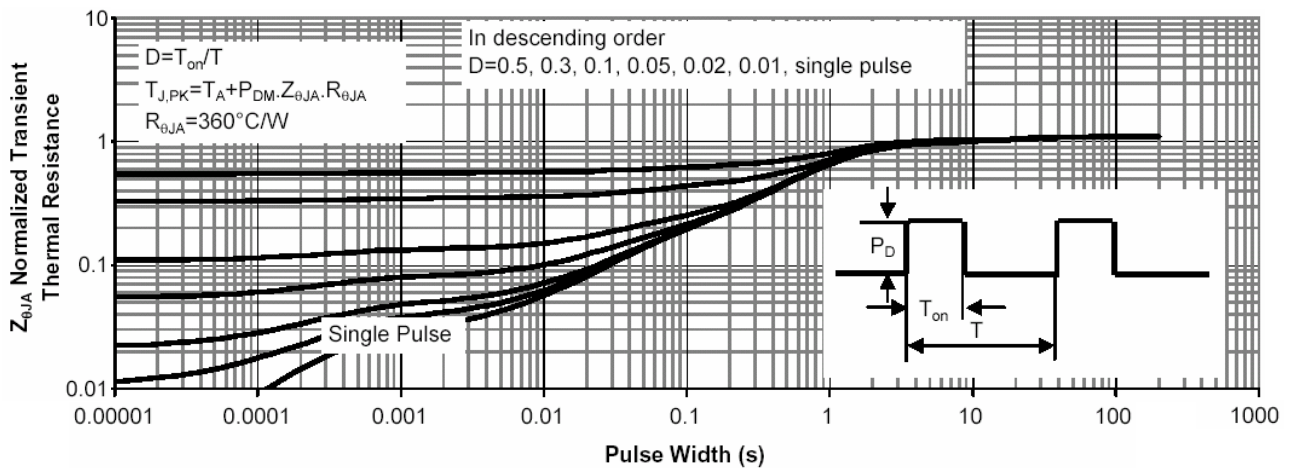


Fig 11. Normalized Maximum Transient Thermal Impedance

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