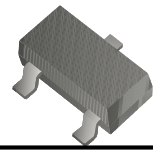


CMS3407T-HF

P-Channel
RoHS Device
Halogen Free



V(BR)DSS	RDS(on)MAX	ID
-30V	50mΩ @ -10V	-4.1A
	75mΩ @ -4.5V	

Features

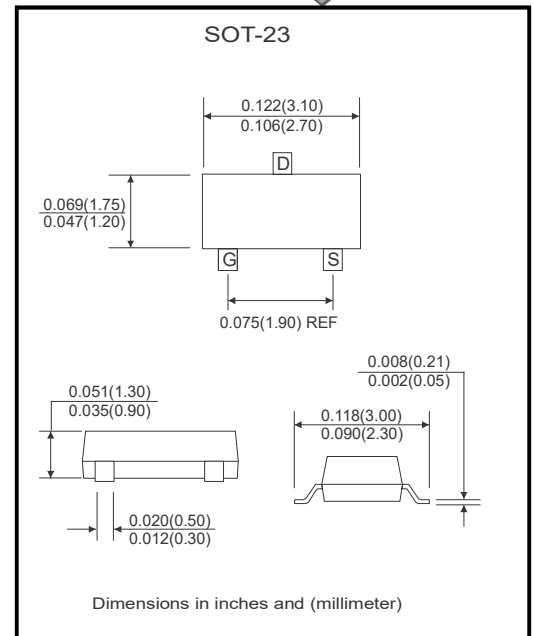
- Advanced high cell density Trench technology
- Low $R_{DS(ON)}$
- Low Gate Charge
- Green Device Available

Description

The CMS3407T is the highest performance trench P-ch MOSFETs with extreme high cell density, which provide excellent $R_{DS(ON)}$

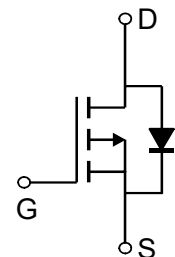
and gate charge for use as a load switch or in PWM applications.

The CMS3407T meet the RoHS and Green Product requirement with full function reliability approved.



Circuit diagram

- G : Gate
- S : Source
- D : Drain



Maximum Ratings (at Ta=25 °C unless otherwise noted)

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current ³	$I_D @ T_A=25^\circ\text{C}$	-4.1	A
	$I_D @ T_A=70^\circ\text{C}$	-3.5	A
Pulsed Drain Current ^{1,2}	$I_{DM} @ T_A=25^\circ\text{C}$	-12	A
Total Power Dissipation	$P_D @ T_A=25^\circ\text{C}$	1.38	W
Linear Derating Factor	-	0.01	W/°C
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 ~ +150	°C

Thermal Data

Parameter	Symbol	Max. Value	Unit
Thermal Resistance Junction-ambient ³	$R_{\theta JA}$	90	°C/W

Electrical Characteristics (at $T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	BV_{DSS}	-30	-	-	V	$V_{GS}=0$, $I_D=-250\mu\text{A}$
Gate Threshold Voltage	$V_{GS(th)}$	-1.0	-	-3.0	V	$V_{DS}=V_{GS}$, $I_D=-250\mu\text{A}$
Forward Transconductance	g_{fs}	-	8.2	-	S	$V_{DS}=-5\text{V}$, $I_D=-4\text{A}$
Gate-Source Leakage Current	I_{GSS}	-	-	± 100	nA	$V_{GS}=\pm 20\text{V}$
Drain-Source Leakage Current($T_J=25^{\circ}\text{C}$)	I_{DSS}	-	-	-1	μA	$V_{DS}=-24\text{V}$, $V_{GS}=0$
Drain-Source Leakage Current($T_J=55^{\circ}\text{C}$)		-	-	-5		$V_{DS}=-24\text{V}$, $V_{GS}=0$
Static Drain-Source On-Resistance ²	$R_{DS(on)}$	-	-	50	m Ω	$V_{GS}=-10\text{V}$, $I_D=-4.1\text{A}$
		-	-	75		$V_{GS}=-4.5\text{V}$, $I_D=-3.0\text{A}$
Total Gate Charge ²	Q_g	-	15.2	-	nC	$I_D=-3\text{A}$ $V_{DS}=-24\text{V}$ $V_{GS}=-10\text{V}$
Gate-Source Charge	Q_{gs}	-	5.5	-		
Gate-Drain ("Miller") Charge	Q_{gd}	-	1	-		
Turn-on Delay Time ²	$T_{d(on)}$	-	8.6	-	ns	$V_{DS}=-15\text{V}$ $I_D=-1\text{A}$ $V_{GS}=-10\text{V}$ $R_G=6\Omega$ $R_D=15\Omega$
Rise Time	T_r	-	12.2	-		
Turn-off Delay Time	$T_{d(off)}$	-	36.6	-		
Fall Time	T_f	-	20.8	-		
Input Capacitance	C_{iss}	-	590	-	pF	$V_{GS}=0\text{V}$ $V_{DS}=-25\text{V}$ $f=1.0\text{MHz}$
Output Capacitance	C_{oss}	-	75	-		
Reverse Transfer Capacitance	C_{rss}	-	10	-		

Source-Drain Diode

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Diode Forward Voltage ²	V_{SD}	-	-	-1.2	V	$I_S=-1.0\text{A}$, $V_{GS}=0\text{V}$, $T_J=25^{\circ}\text{C}$
Continuous Source Current	I_S	-	-	-4.1	A	$V_G=V_D=0\text{V}$, Force Current

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

2. Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.

3. Surface mounted on 1 in² copper pad of FR4 board; 270°C/W when mounted on min. copper pad.

RATING AND CHARACTERISTIC CURVES

TYPICAL CHARACTERISTIC

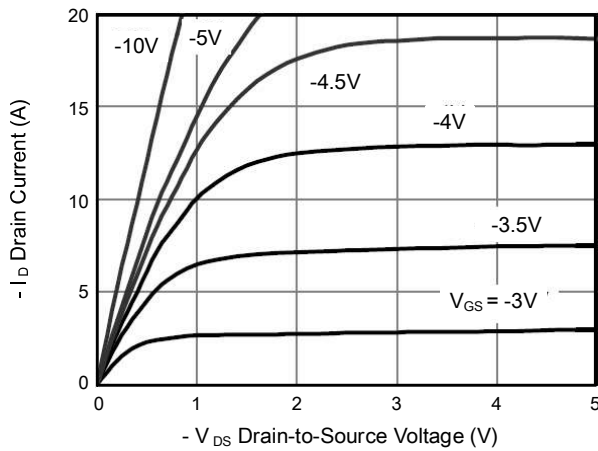


Fig.1 Typical Output Characteristics

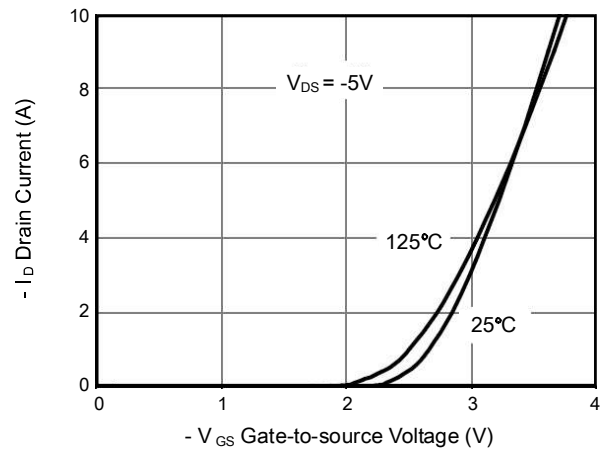


Fig.2 Transfer Characteristics

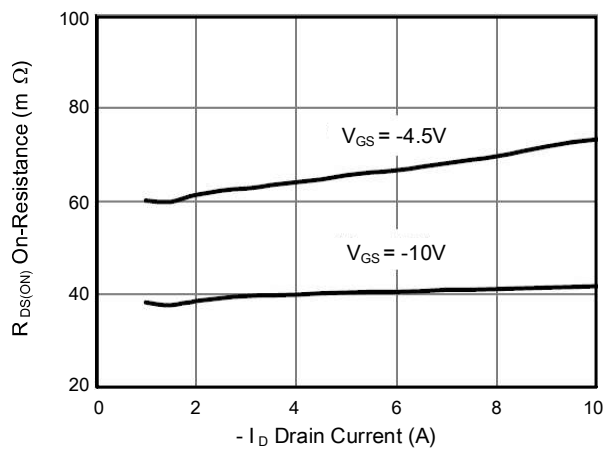


Fig.3 On-Resistance vs. Drain Current

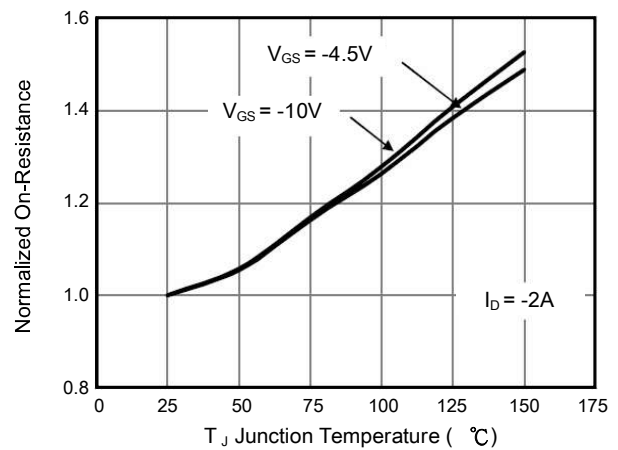


Fig.4 Normalized $R_{DS(ON)}$ vs. T_J

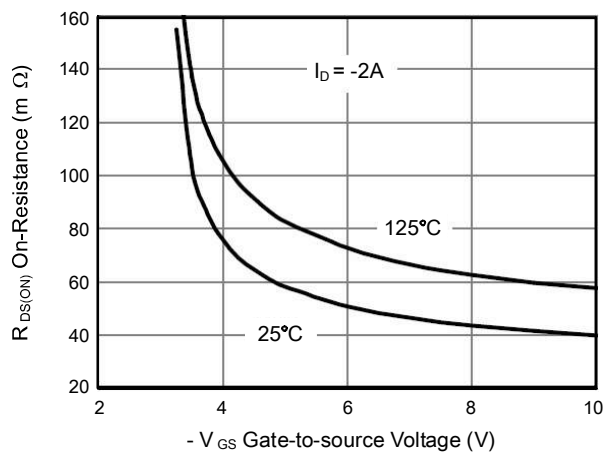


Fig.5 On-Resistance vs. G-S Voltage

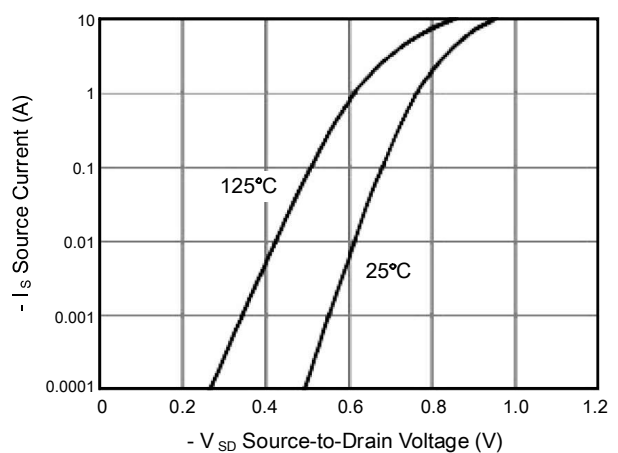


Fig.6 Forward Characteristics of Reverse

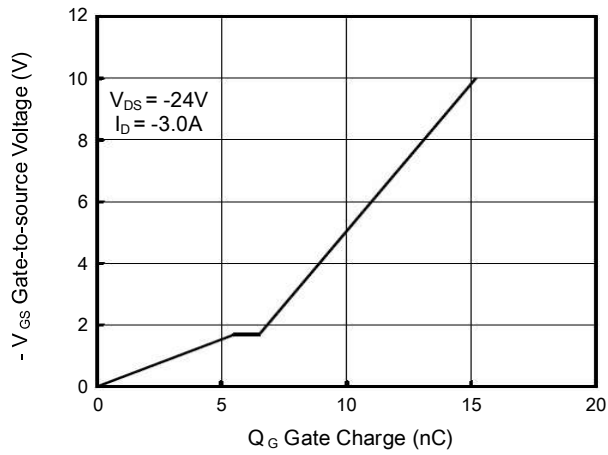


Fig.7 Gate Charge Characteristics

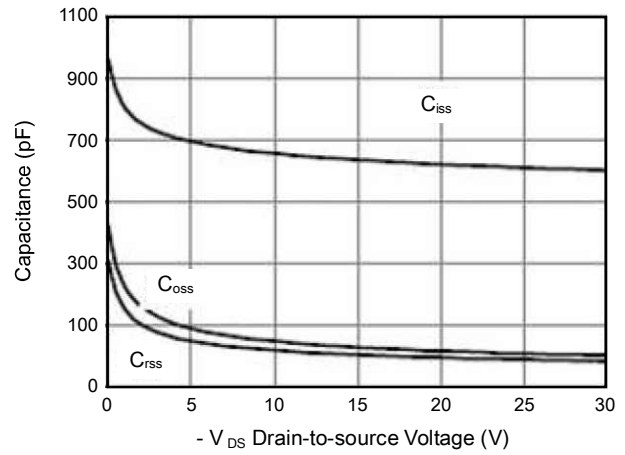


Fig.8 Capacitance Characteristics

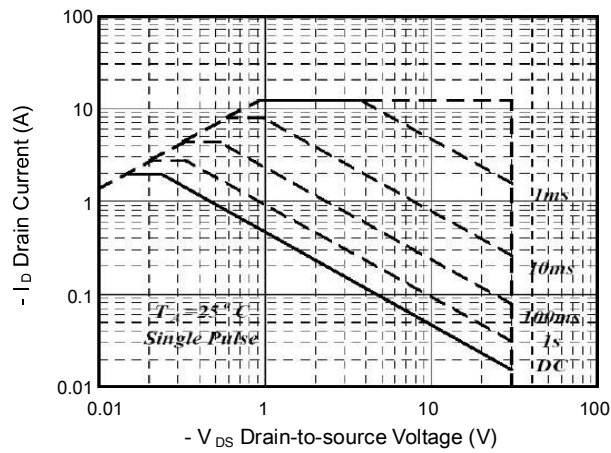


Fig.9 Safe Operating Area

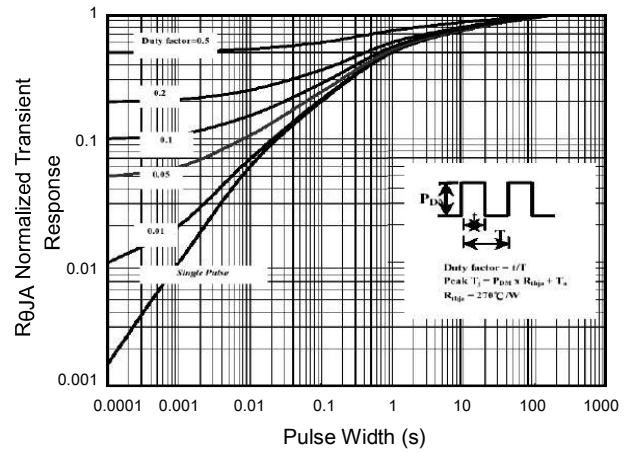


Fig.10 Transient Thermal Impedance

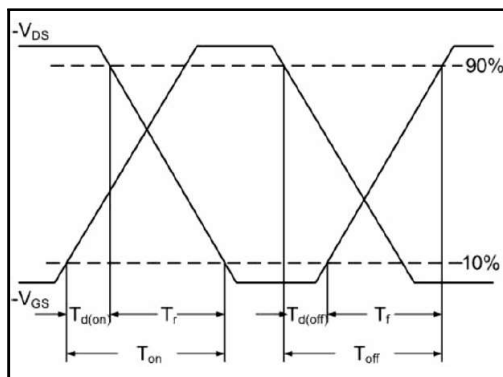


Fig.11 Switching Time Waveform

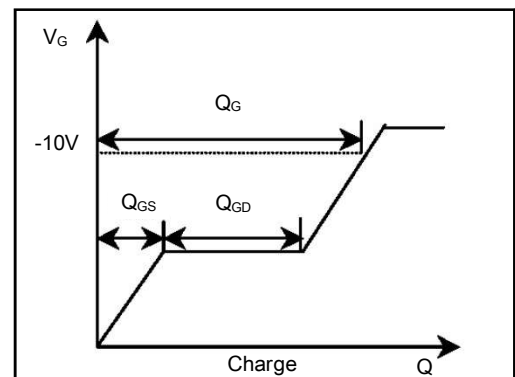
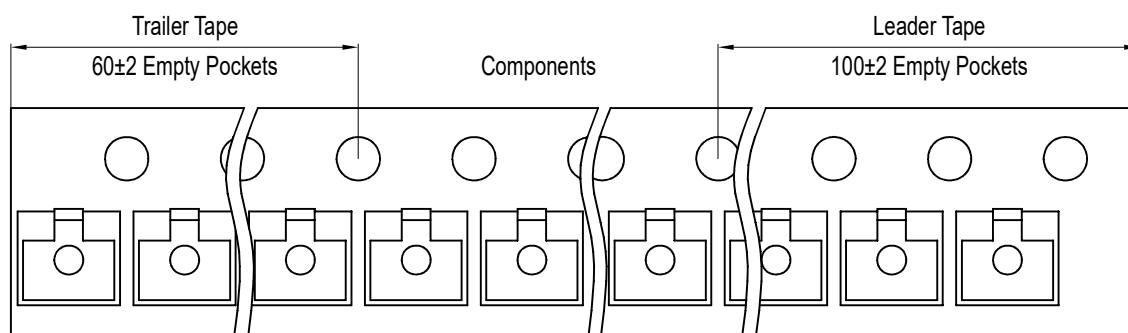
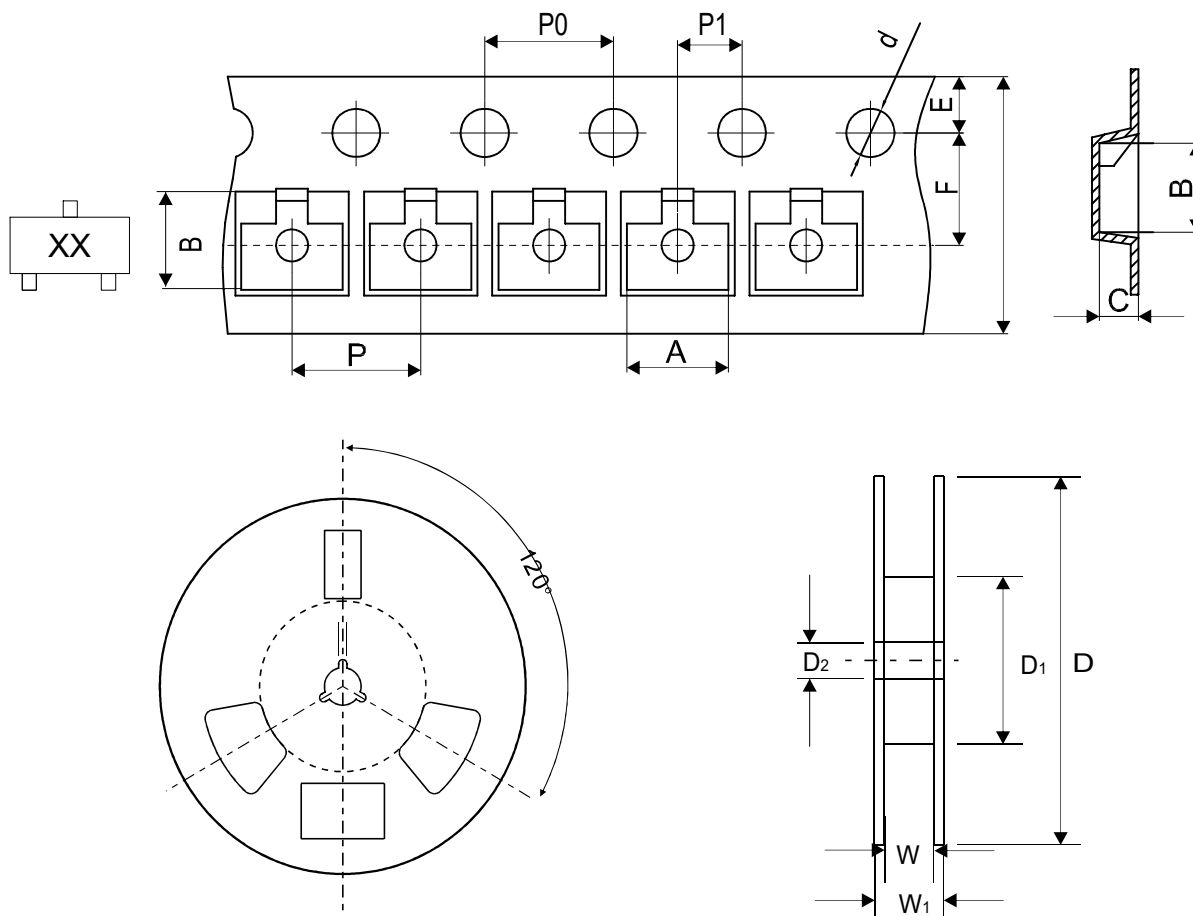


Fig.12 Gate Charge Waveform

Reel Taping Specification

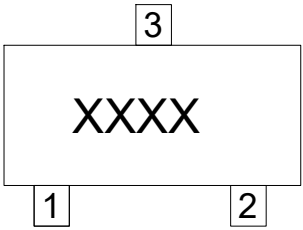


SOT-23	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	3.10 ± 0.10	3.20 ± 0.10	1.37 ± 0.10	1.50 ± 0.10	178.00 ± 2.00	54.40 ± 1.00	13.00 ± 1.00
	(inch)	0.122 ± 0.004	0.126 ± 0.004	0.054 ± 0.004	0.059 ± 0.004	7.008 ± 0.079	2.142 ± 0.039	0.512 ± 0.039

SOT-23	SYMBOL	E	F	P	P0	P1	W	W1
	(mm)	1.75 ± 0.10	3.50 ± 0.10	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.10	$8.40 + 1.50 / - 0.50$	12.00 ± 1.50
	(inch)	0.069 ± 0.004	0.138 ± 0.004	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.004	$0.330 + 0.012 / - 0.004$	0.472 ± 0.039

Marking Code

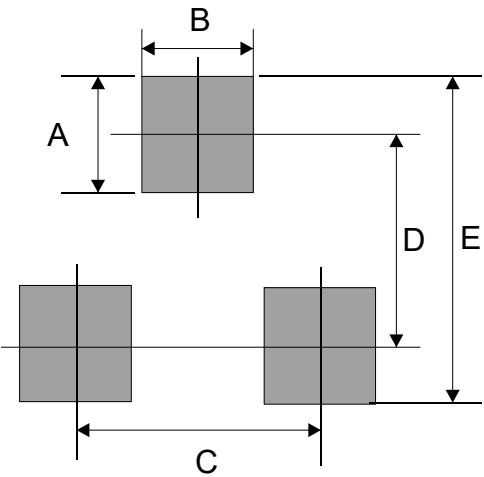
Part Number	Marking Code
CMS3407T-HF	3407



xxxx = Product type marking code

Suggested PAD Layout

SIZE	SOT-23	
	(mm)	(inch)
A	0.80	0.031
B	0.60	0.024
C	2.20	0.087
D	2.37	0.093
E	2.97	0.117



Standard Packaging

Case Type	Qty Per Reel	Reel Size
	(Pcs)	(inch)
SOT-23	3,000	7