Descriptions

This is -20V -7A P-CHANNEL MOSFET in a SOT23-3 Plastic Package

Features

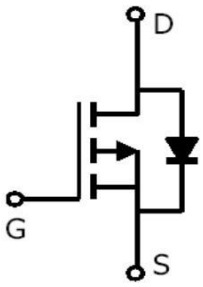
HF Product

Parameter	Value	Unit
V_{DS}	-20	V
I_D	-7	A
$R_{DS(ON)}$@-4.5V	≤17	mΩ

Applications

- Power Management in Notebook computer,
- Portable Equipment and Battery powered systems

Equivalent Circuit & Pinning



SOT23-3 PIN1：Gate PIN 2：Source PIN 3：Drain

Absolute Maximum Ratings(Ta=25℃)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DSS}	-20	V
Gate-Source Voltage		V_{GSS}	±12	V
Continuous Drain Current		I_D	7.0	A
Pulsed Drain Current		I_{DM}	38	A
Avalanche Current		I_{AS}	13	A
Avalanche energy L=0.5mH		E_{AS}	59	mJ
Power Dissipation for Single Operation		P_D	1.3	W
Maximum Junction Temperature		T_j	150	℃
Storage Temperature Range		T_{stg}	-55～150	℃
Thermal Resistance-Junction to Ambient	t≦10s	$R_{\theta JA}$	90	℃/W
	Steady State		125	℃/W
Thermal Resistance-Junction to Lead	Steady State	$R_{\theta JL}$	80	℃/W

Electrical Characteristics(Ta=25℃)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	I_D=-250μA V_{GS}=0V	-20	-23		V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-20V V_{GS}=0V			-1.0	μA
Gate-Body leakage current	I_{GSS}	V_{DS}=0V V_{GS}=±12V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=VGS I_D=-250μA	-0.4	-0.7	-1.0	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=-4.5V I_D=-10A		15	17	mΩ
		V_{GS}=-2.5V I_D=-5A		19	25	
		V_{GS}=-1.8V I_D=-1A		27	38	
Diode Forward Voltage	V_{SD}	I_S=-1A V_{GS}=0V			-1.2	V
Gate resistance	Rg	V_{GS}=0V, V_{DS}=0V, f=1MHz		13.5		
Input Capacitance	C_{iss}	V_{GS}=0V V_{DS}=-20V f=1MHz		2550		pF
Output Capacitance	C_{oss}			205		
Reverse Transfer Capacitance	C_{rss}			190		

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Total Gate Charge	Q_g	V_{GS}=-4.5V, V_{DS}=-10V, I_D=-6.5A		7.4		nC
Gate Source Charge	Q_{gs}			1.3		
Gate Drain Charge	Q_{gd}			2.5		
Turn–On Delay Time	$t_{d(on)}$	V_{GS}=-4.5V R_L=1.54Ω V_{DS}=-10V R_{GEN}=3Ω		7.5		ns
Turn–On Rise Time	t_r			11		
Turn–Off Delay Time	$t_{d(off)}$			33		
Turn–Off Fall Time	t_f			10.5		

Electrical Characteristic Curve

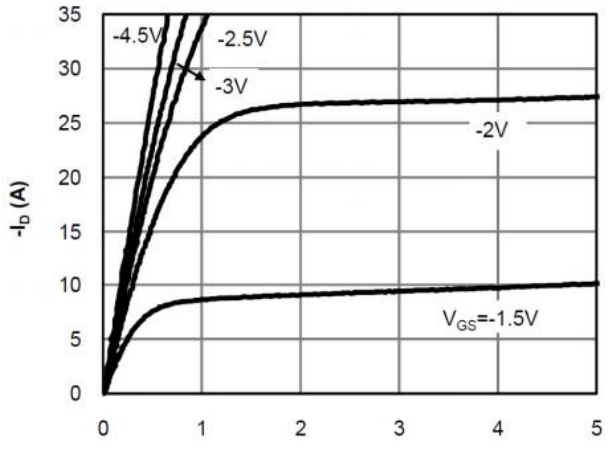


Fig 1: On-Region Characteristics

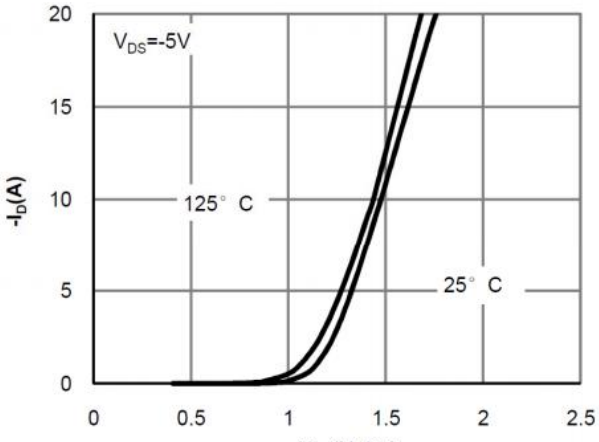


Figure 2: Transfer Characteristics

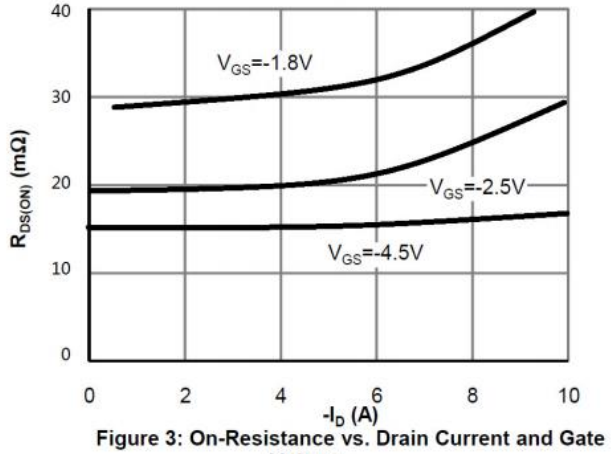


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

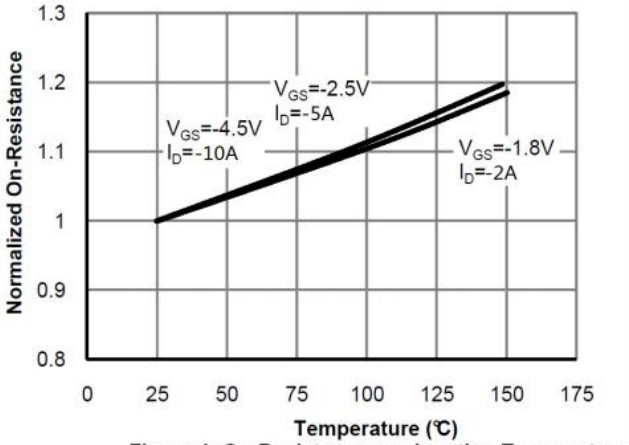


Figure 4: On-Resistance vs. Junction Temperature

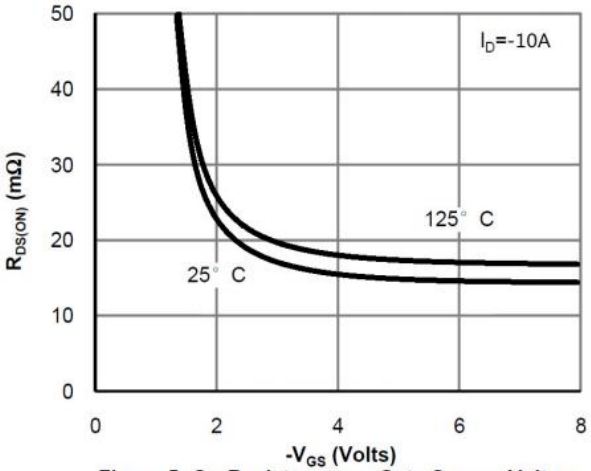


Figure 5: On-Resistance vs. Gate-Source Voltage

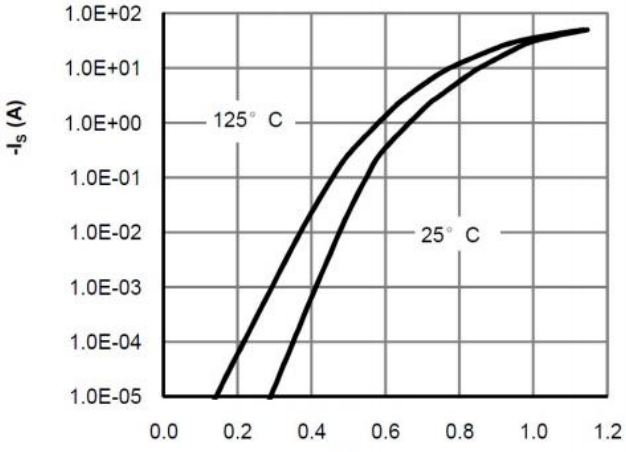


Figure 6: Body-Diode Characteristics

Electrical Characteristic Curve

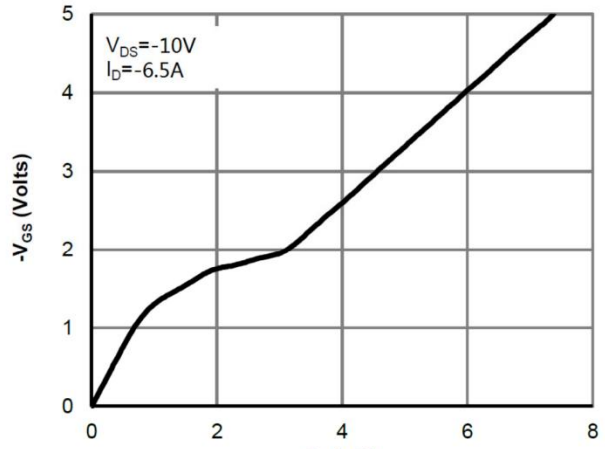


Figure 7: Gate-Charge Characteristics

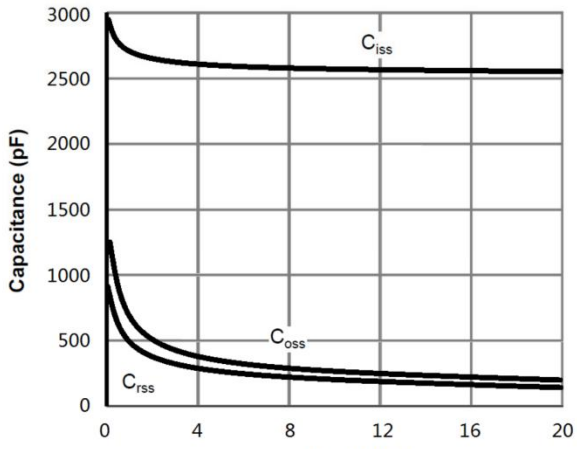
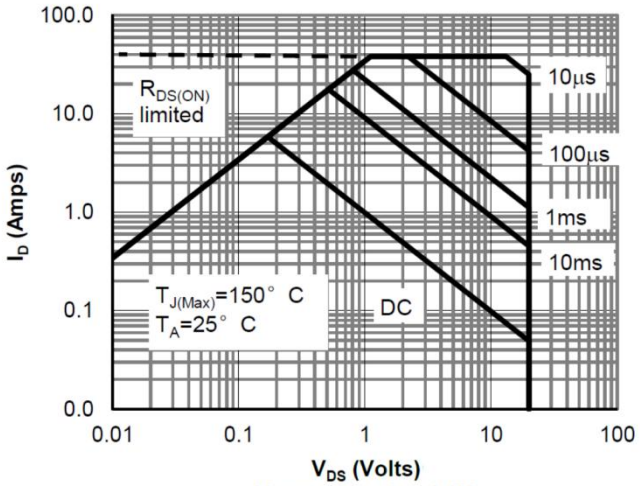


Figure 8: Capacitance Characteristics



V_{GS}> or equal to 1.8V

Figure 9: Maximum Forward Biased Safe Operating Area

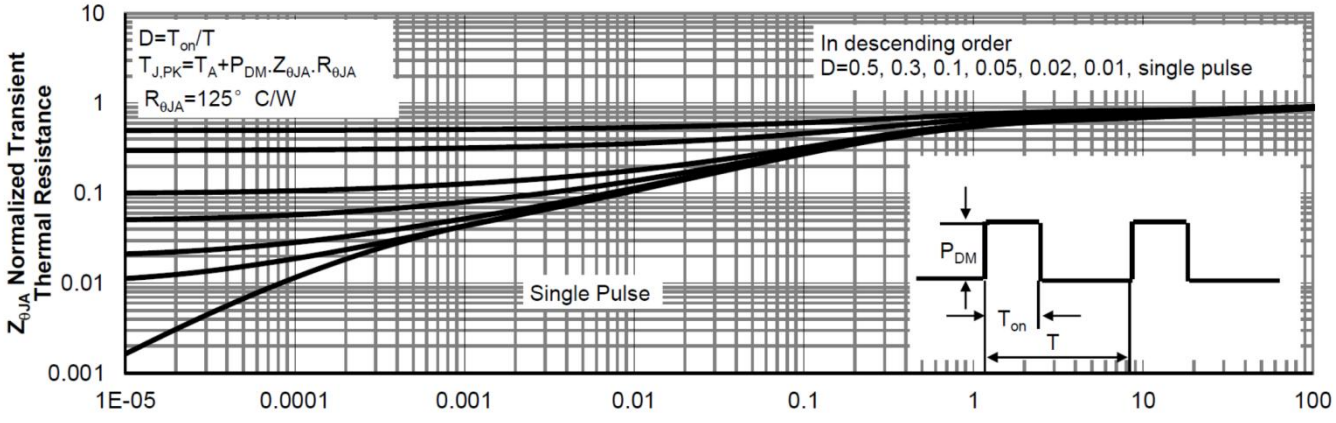
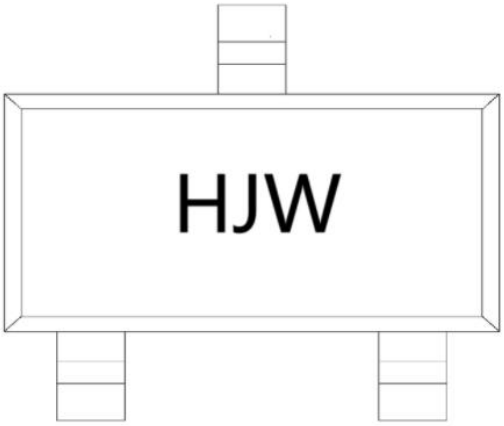


Figure 10: Normalized Maximum Transient Thermal Impedance

Marking Instructions



Note:
HJW: Product Type

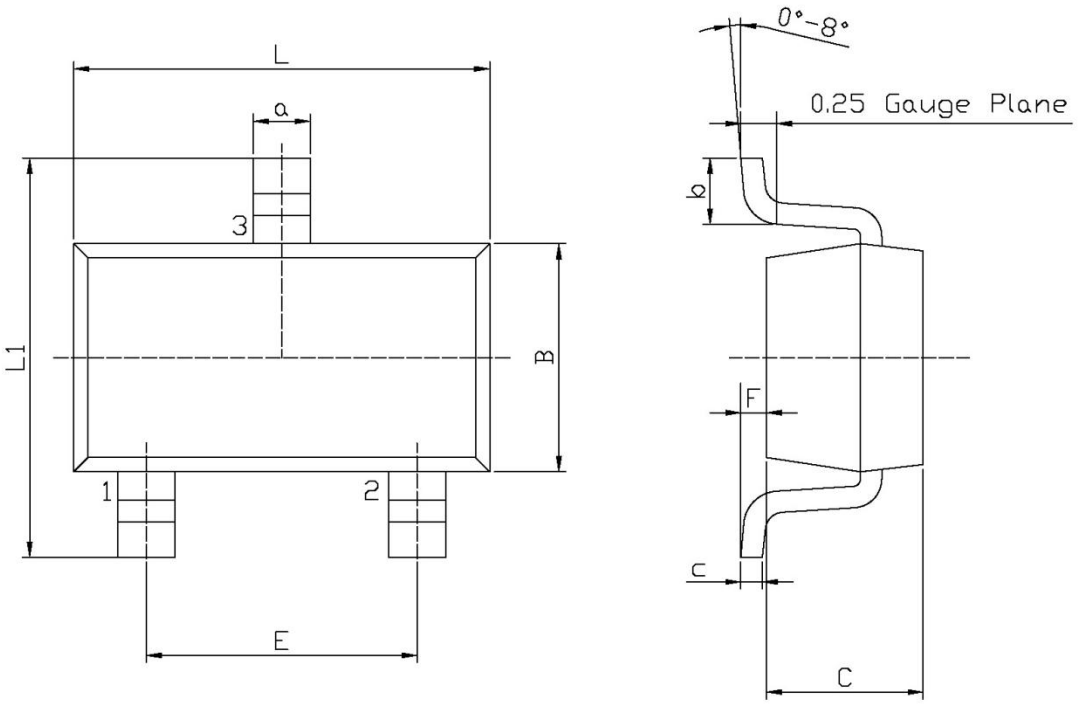
Type	Marking
CTCS150P02MC	HJW

Packaging SPEC

REEL

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit：mm³)		
	Units/Reel 只/卷盘	Reels/Inner Box 卷盘/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Reel	Inner Box 盒	Outer Box 箱
SOT-23-3	3,000	10	30,000	4	120,000	7″ ×8	210×205×205	445×230×435

Package Outline Dimensions



Unit: mm

Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
L	2.82	3.02	a	0.35	0.50
B	1.50	1.70	c	0.10	0.20
C	0.90	1.30	b	0.35	0.55
L1	2.60	3.00	F	0	0.15
E	1.80	2.00			

SOT23-3