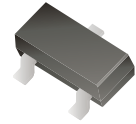


CJ1012-HF

**N-Channel
RoHS Device
Halogen Free**



Features

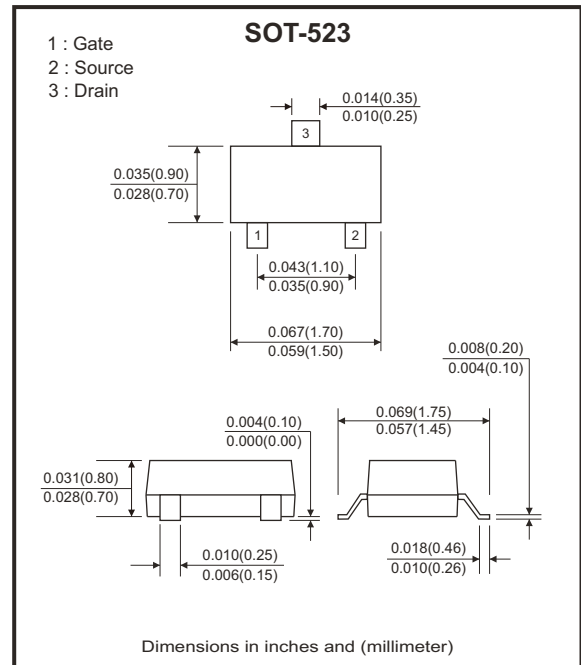
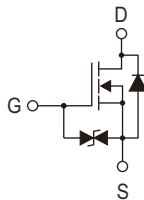
- High-side switching.
- Low on-resistance.
- Low threshold.
- Fast switching speed.
- ESD protected.

Mechanical data

- Case: SOT-523, molded plastic.

Circuit Diagram

G : Gate
S : Source
D : Drain



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

Parameter	Symbol	Value	Unit
Drain-source voltage	V _{DSS}	20	V
Gate-source voltage	V _{GS}	±12	V
Drain current-continuous	I _{D(DC)}	500	mA
Drain Current-pulsed (Note 1)	I _{DM(pulse)}	1000	mA
Power dissipation (Note 2, T _A =25°C)	P _D	150	mW
Maximum power dissipation (Note 3, T _C =25°C)		275	
Thermal resistance from junction to ambient	R _{θJA}	833	°C/W
Thermal resistance from junction to case	R _{θJC}	455	°C/W
Junction temperature	T _J	150	°C
Storage temperature range	T _{STG}	-55 to +150	°C

Notes: 1. Repetitive rating: Pulse width limited by maximum junction temperature.
2. This test is performed with no heat sink at Ta=25°C.
3. This test is performed with infinite heat sink at Tc=25°C.

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Electrical Characteristics (at TA=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
On/Off States						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	20			V
Gate-threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.45	0.8	1.2	V
Gate-body leakage current	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 4.5V$			± 1	μA
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 16V, V_{GS} = 0V$			100	nA
Drain-source on-state resistance	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D = 600mA$		250	700	m Ω
		$V_{GS} = 2.5V, I_D = 500mA$		330	850	
Forward transconductance	g_{FS}	$V_{DS} = 10V, I_D = 400mA$		1		S
Dynamic Characteristics						
Input capacitance (Note 1)	C_{iss}	$V_{DS} = 16V, V_{GS} = 0V, f = 1MHz$		100		pF
Output capacitance (Note 1)	C_{oss}			16		
Reverse transfer capacitance (Note 1)	C_{rss}			12		
Total gate charge	Q_g	$V_{DS} = 10V, V_{GS} = 4.5V, I_D = 250mA$		750		nC
Gate-source charge	Q_{gs}			75		
Gate-drain charge	Q_{gd}			225		
Switching Times (Note 1)						
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 10V, R_L = 47\Omega, I_D = 200mA, V_{GS} = 4.5V, R_G = 10\Omega$		5		nS
Rise time	t_r			5		
Turn-off delay time	$t_{d(off)}$			25		
Fall time	t_f			11		
Drain-source diode characteristics						
Drain-source diode forward voltage (Note 2)	V_{SD}	$I_S = 0.15A, V_{GS} = 0V$			1.2	V

- Notes: 1. These parameters have no way to verify.
 2. Pulse test: Pulse width $\leq 300\mu s$, duty cycle $\leq 0.5\%$.

Rating and Characteristic Curves (CJ1012-HF)

Fig.1 - Output Characteristics

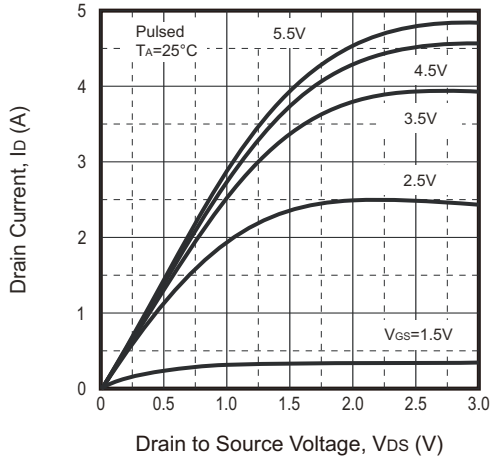


Fig.2 - Transfer Characteristics

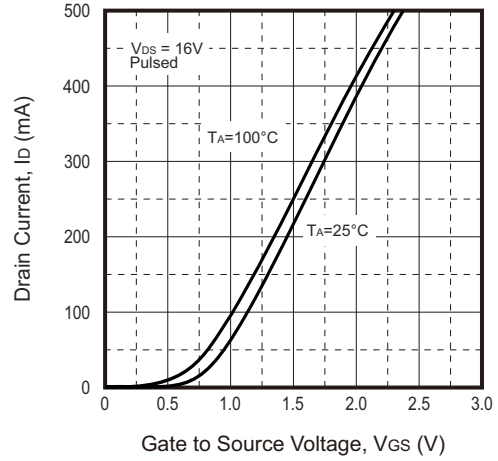


Fig.3 - $R_{DS(ON)} - I_D$

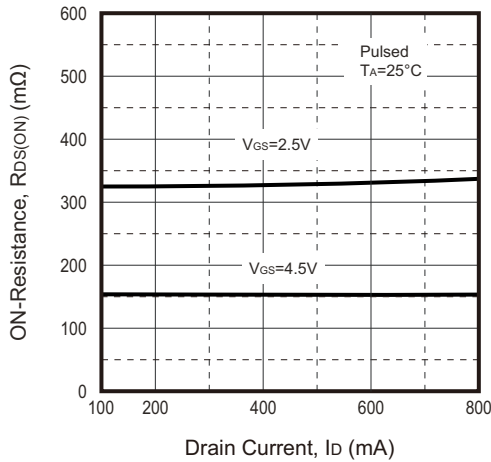


Fig.4 - $R_{DS(ON)} - V_{GS}$

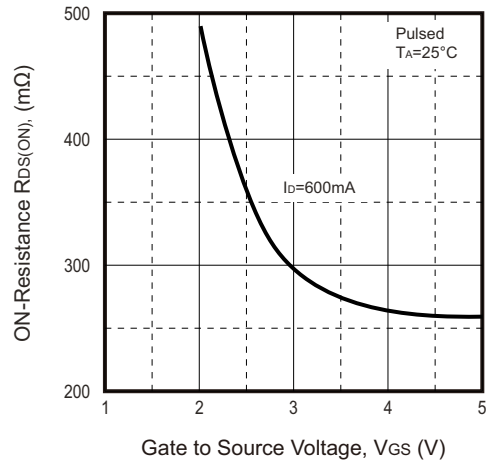


Fig.5 - $I_S - V_{SD}$

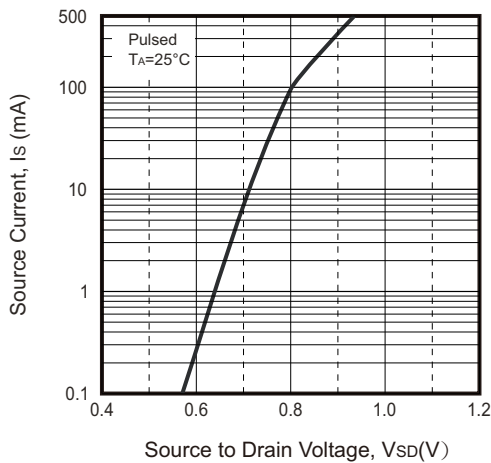
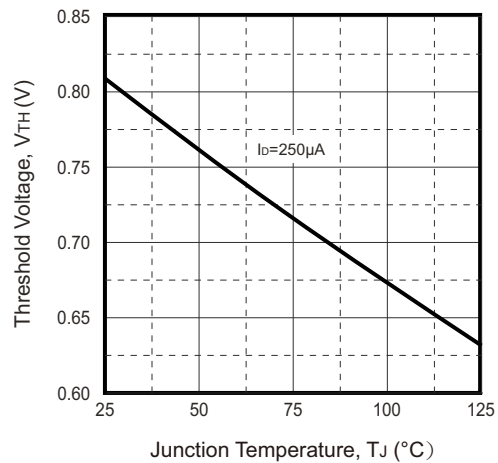
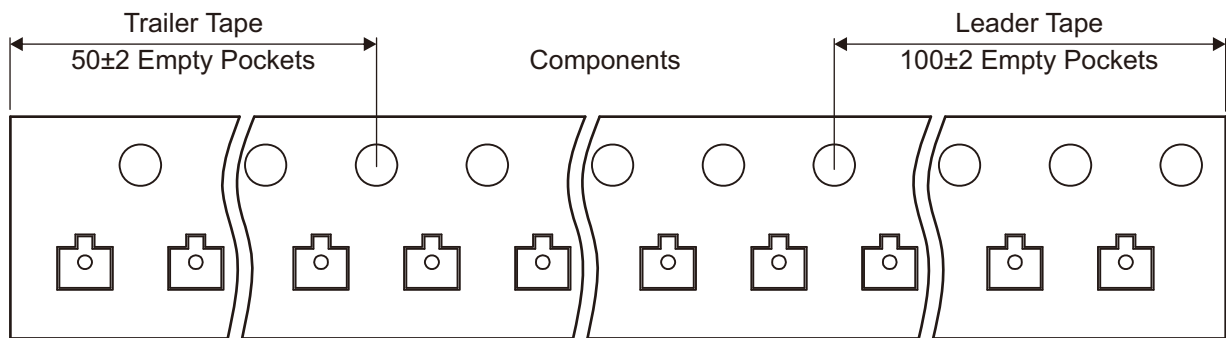
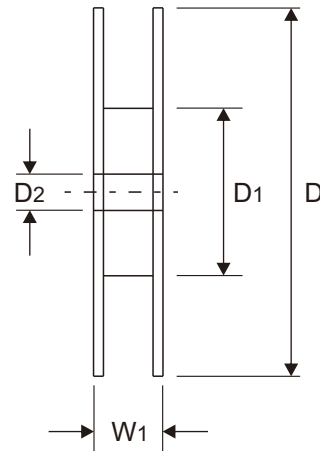
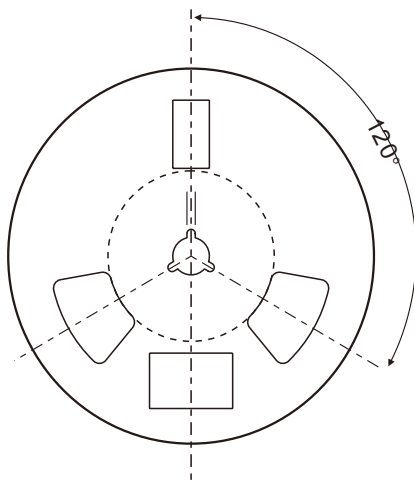
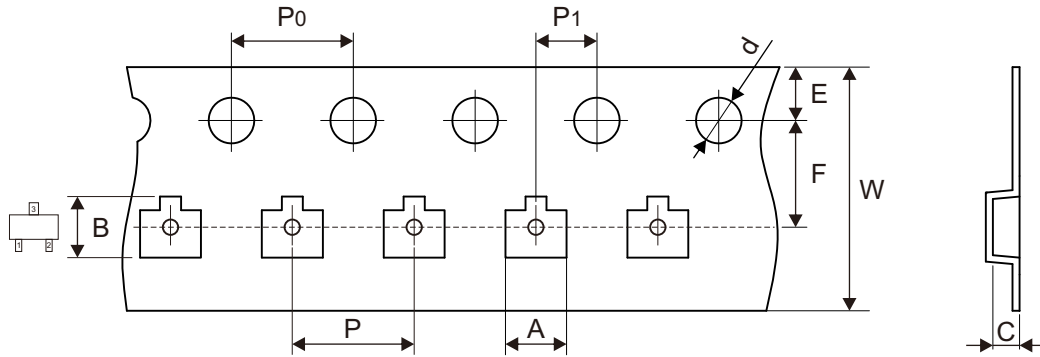


Fig.6 - Threshold Voltage



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Reel Taping Specification



SOT-523	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	1.85 ± 0.05	1.85 ± 0.05	0.875 ± 0.05	1.50 ± 0.10	178.00 ± 2.00	54.40 ± 1.00	13.00 ± 1.00
	(inch)	0.073 ± 0.002	0.073 ± 0.002	0.034 ± 0.002	0.059 ± 0.004	7.008 ± 0.079	2.142 ± 0.039	0.512 ± 0.039

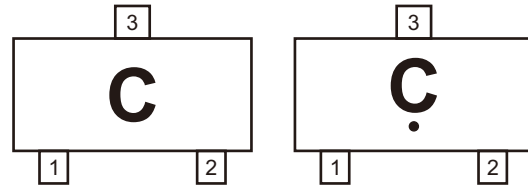
SOT-523	SYMBOL	E	F	P	P0	P1	W	W1
	(mm)	1.75 ± 0.10	3.50 ± 0.10	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.10	8.00 + 0.30 - 0.10	12.30 ± 1.00
	(inch)	0.069 ± 0.004	0.138 ± 0.004	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.004	0.315 + 0.012 - 0.004	0.484 ± 0.039

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REV:B

Marking Code

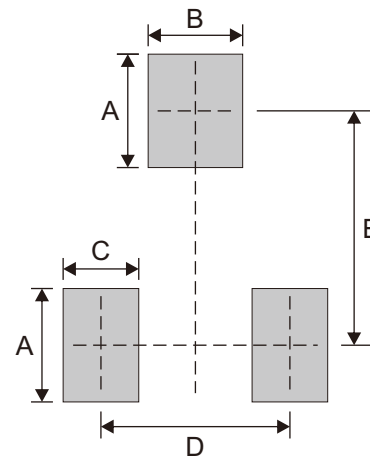
Part Number	Marking Code
CJ1012-HF	C



Solid dot = Control code

Suggested P.C.B. PAD Layout

SIZE	SOT-523	
	(mm)	(inch)
A	0.60	0.024
B	0.50	0.020
C	0.40	0.016
D	1.00	0.039
E	1.24	0.049



Note: 1. The pad layout is for reference purposes only.

Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
SOT-523	3,000	7