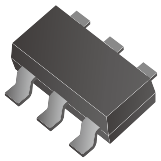
MOSFET

CEH2315-HF

P-Channel
RoHS Device
Halogen Free



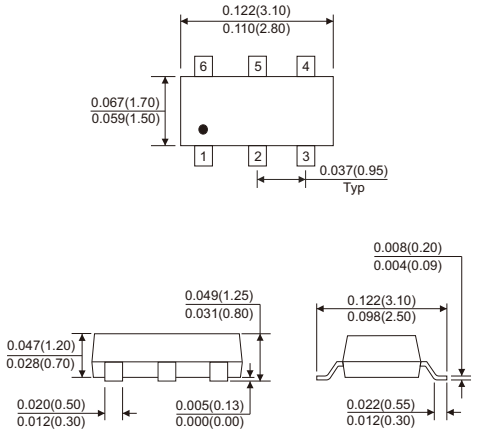
Features

- High density cell design for extremely low $R_{DS(ON)}$.
- Rugged and reliable.

Mechanical data

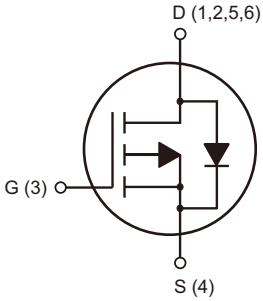
- Case : TSOP-6, molded plastic.
- Mounting position: Any.

TSOP-6



Dimensions in inches and (millimeter)

Circuit Diagram



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

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DS}	-30	V
Gate-source voltage	V_{GS}	±20	V
Drain current-continuous	I_D	-5	A
Drain current-pulsed (Note 1)	I_{DM}	-20	A
Maximum power dissipation	P_D	2	W
Thermal resistance, Junction to ambient (Note 2)	$R_{\theta JA}$	62.5	°C/W
Operating and storage temperature range	T_J, T_{STG}	-55 to +150	°C

Notes: 1. Repetitive rating: pulse width limited by maximum junction temperature.
2. Surface mounted on FR4 board, t < 5 sec.

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

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	BV_{DSS}	V_{GS} = 0V, I_D = -250μA	-30			V
Zero gate voltage drain current	I_{DSS}	V_{DS} = -30V, V_{GS} = 0V			-1	μA
Gate body leakage current, forward	I_{GSSF}	V_{GS} = 20V, V_{DS} = 0V			100	nA
Gate body leakage current, reverse	I_{GSSR}	V_{GS} = -20V, V_{DS} = 0V			-100	nA
On characteristics (Note 1)						
Gate threshold voltage	$V_{GS(th)}$	V_{GS} = V_{DS}, I_D = -250μA	-1		-3	V
Static drain-source on-resistance	$R_{DS(on)}$	V_{GS} = -10V, I_D = -3.8A		40	50	mΩ
		V_{GS} = -4.5V, I_D = -3A		60	85	
Dynamic characteristics (Note 2)						
Input capacitance	C_{iss}	V_{DS} = -15V, V_{GS} = 0V, f = 1MHz		650		pF
Output capacitance	C_{oss}			130		
Reverse transfer capacitance	C_{rss}			75		
Switching characeristics (Note 2)						
Turn-on delay time	$t_{d(on)}$	V_{DD} = -15V, I_D = -1A, V_{GS} = -10V, R_{GEN} = 6Ω		10		nS
Turn-on rise time	t_r			4		
Turn-off delay time	$t_{d(off)}$			36		
Turn-off fall time	t_f			6		
Total gate charge	Q_g	V_{DS} = -15V, I_D = -3.6A, V_{GS} = -10V		11.2		nC
Gate-source charge	Q_{gs}			1.7		
Gate-drain charge	Q_{gd}			2.0		
Drain-source diode characteristics and maximum ratings						
Drain-source diode forward current (Note 3)	I_S				-1.6	A
Drain-source diode forward voltage (Note 1)	V_{SD}	V_{GS} = 0V, I_S = -1.6A			-1.2	V

Notes: 1. Pulse width ≤ 300μs, duty cycle ≤ 2%.
2. Guaranteed by design, not subject to production testing.
3. Surface mounted on FR4 board, t < 5 sec.

Rating and Characteristic Curves (CEH2315-HF)

Fig.1 - Output Characteristics

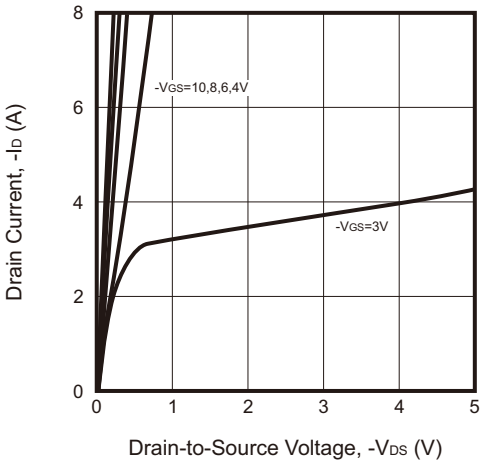


Fig.2 - Transfer Characteristics

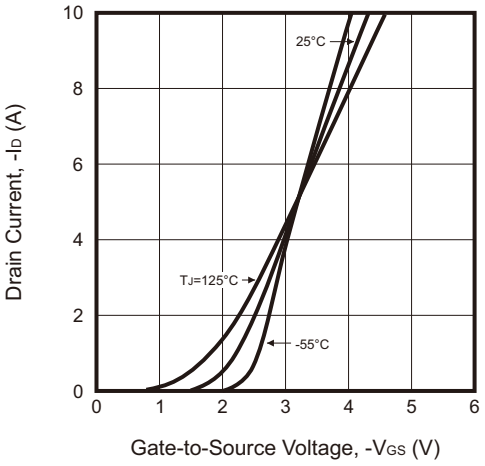


Fig.3 - Capacitance

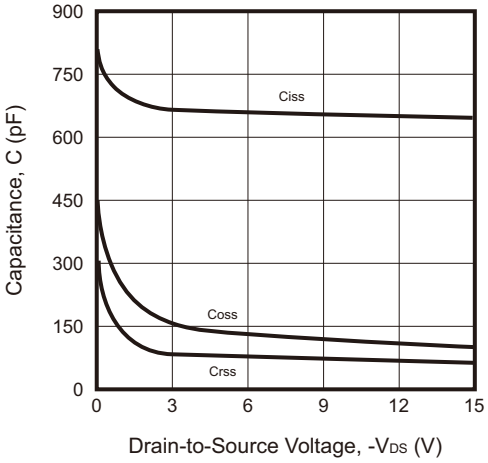


Fig.4 - On-Resistance Variation With Temperature

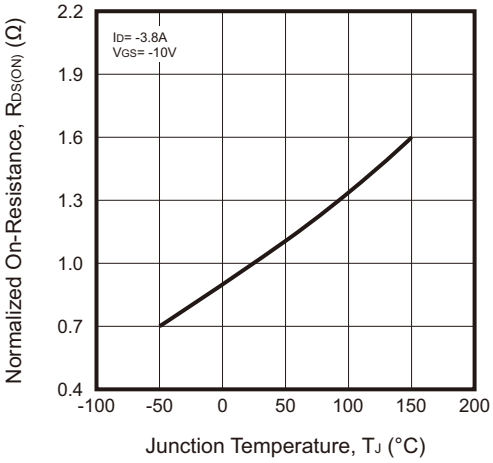


Fig.5 - Gate Threshold Variation With Temperature

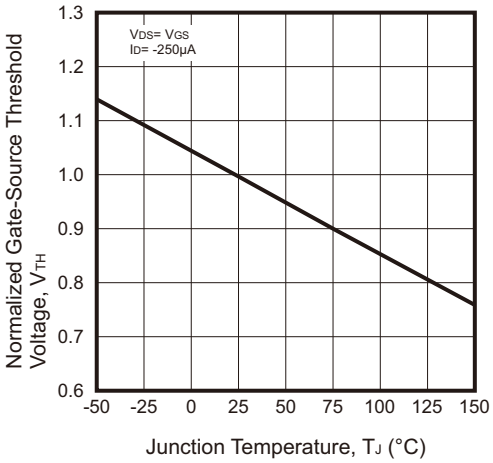
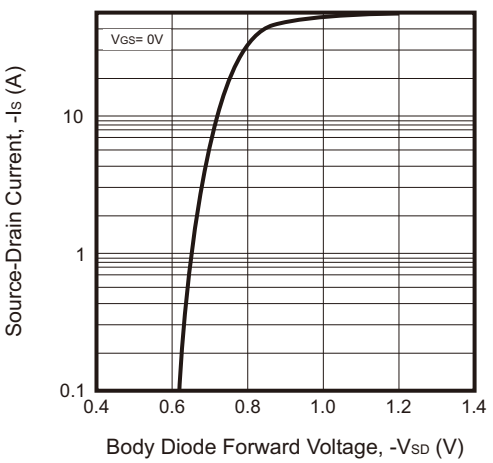


Fig.6 - Body Diode Forward Voltage Variation With Source Current



Rating and Characteristic Curves (CEH2315-HF)

Fig.7 - Gate Charge

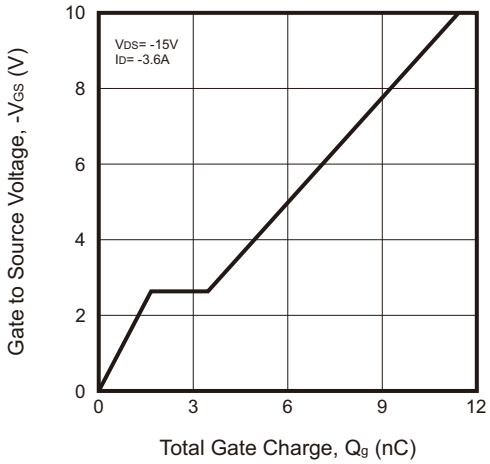


Fig.8 - Max. Safe Operating Area

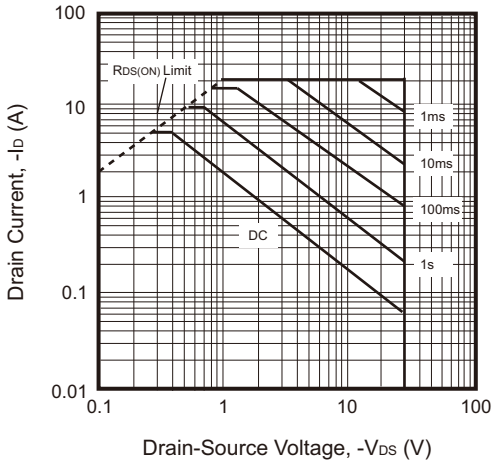
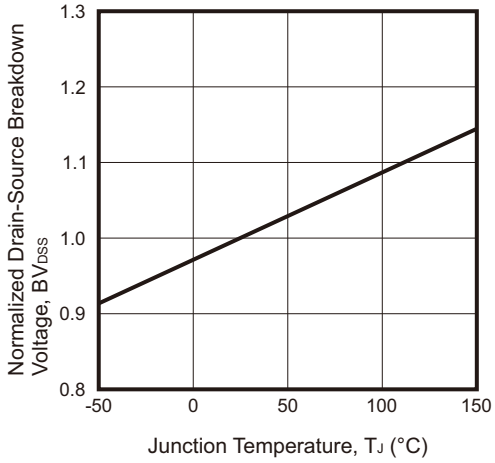
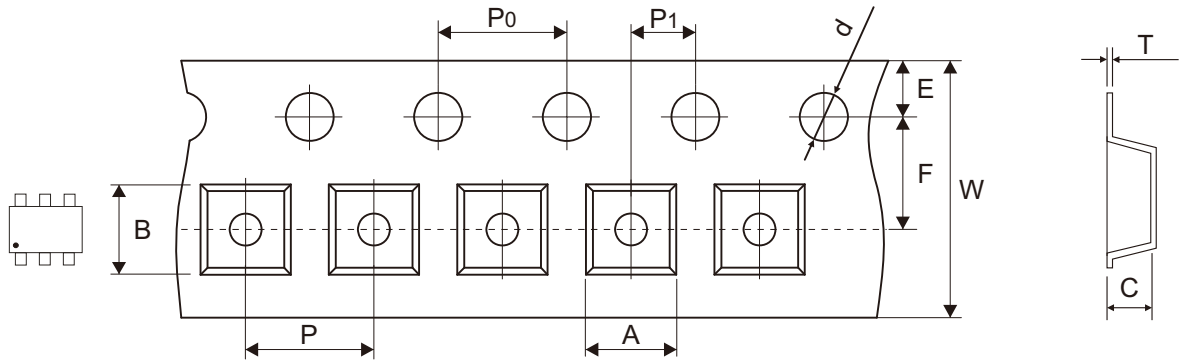
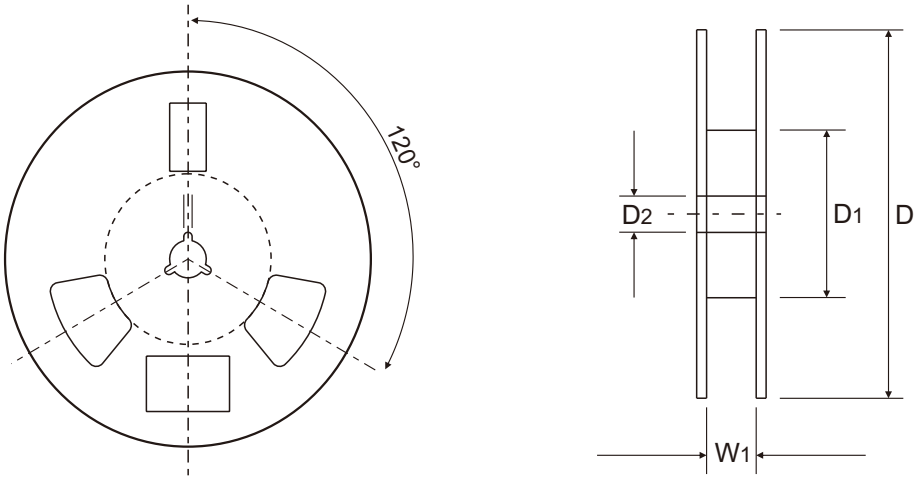


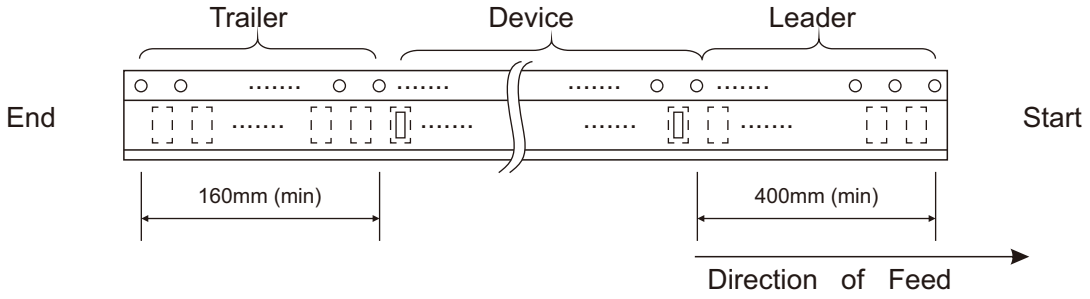
Fig.9 - Breakdown Voltage Variation vs Temperature



Reel Taping Specification





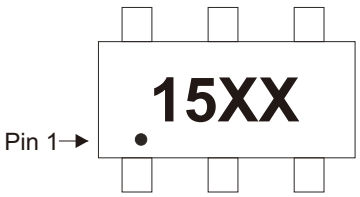


	SYMBOL	A	B	C	d	D	D1	D2
TSOP-6	(mm)	3.20 ± 0.10	3.05 ± 0.10	1.20 ± 0.10	1.50 + 0.10 − 0.00	178 ± 1.00	54.00 ± 0.50	13.50 ± 0.20
	(inch)	0.126 ± 0.004	0.120 ± 0.004	0.047 ± 0.004	0.059 + 0.004 − 0.000	7.008 ± 0.039	2.126 ± 0.020	0.531 ± 0.008

	SYMBOL	E	F	P	P0	P1	T	W	W1
TSOP-6	(mm)	1.75 ± 0.10	3.50 ± 0.05	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	0.25 ± 0.05	8.00 ± 0.15	9.50 ± 1.00
	(inch)	0.069 ± 0.004	0.138 ± 0.002	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.010 ± 0.002	0.315 ± 0.006	0.374 ± 0.039

Marking Code

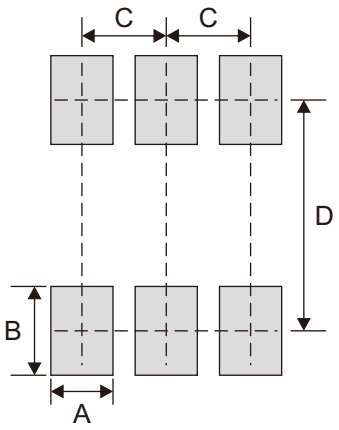
Part Number	Marking Code
CEH2315-HF	15



xx = Control code

Suggested P.C.B. PAD Layout

SIZE	TSOP-6	
	(mm)	(inch)
A	0.70 Min	0.028 Min
B	1.00 Min	0.039 Min
C	0.95	0.037
D	2.60	0.102



Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
TSOP-6	3,000	7