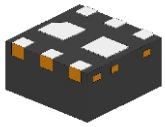
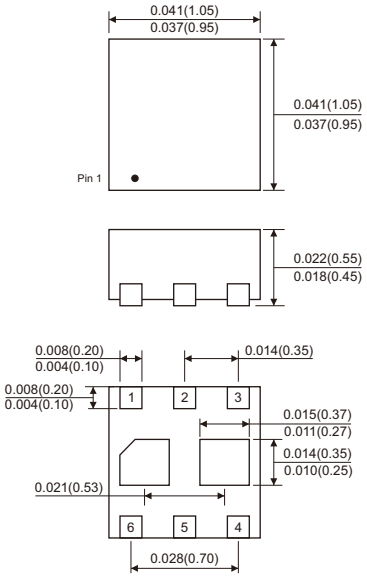
CMBA06CP02A06K-HF

P-Channel
RoHS Device
Halogen Free



DFN06P/DFN1010



Dimensions in inches and (millimeter)

Features

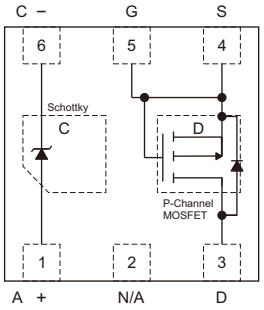
- Leadless SMD package featuring a MOSFET and Schottky diode.
- lower component placement and inventory costs along with board space saving.
- ESD protection.
- Human body model (HBM) 3kV
- Charge device model (CDM) 1kV

Mechanical data

- Case: DFN06P/DFN1010 package, molded plastic.
- Mounting position: Any.

Circuit Diagram

- A : Anode
- C : Cathode



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

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

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DS}	-20	V
Gate-source voltage	V_{GS}	±8	V
Continuous drain current	I_D	-900	mA
Power dissipation	P_D	600	mW
Thermal resistance, junction to ambient @T_A=25°C	$R_{\theta JA}$	182	°C/W
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +150	°C

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

Parameter	Symbol	Value	Unit
Repetitive peak reverse voltage	V_{RRM}	40	V
Reverse voltage	V_R	40	V
Average forward rectified current	I_O	500	mA
Forward current surge peak 8.3ms single half sine-wave superimposed on rate load (JEDEC method)	I_{FSM}	4	A
Operating junction temperature range	T_J	-55 to +125	°C
Storage temperature range	T_{STG}	-55 to +150	°C

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

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Static Electrical Characteristics						
Drain-source breakdown voltage	BV_{DSS}	V_{GS} = 0V, I_D = -250μA	-20			V
Zero gate voltage drain current	I_{DSS}	V_{DS} = -16V, V_{GS} = 0V			-1	μA
Gate leakage current	I_{GSS}	V_{GS} = ±8V, V_{DS} = 0V			±10	μA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -250μA	-0.4		-1.0	V
Drain source on-state resistance	$R_{DS(on)}$	V_{GS} = -4.5V, I_D = -500mA		448	580	mΩ
		V_{GS} = -2.5V, I_D = -500mA		574	720	
		V_{GS} = -1.8V, I_D = -100mA		696	1050	
		V_{GS} = -1.5V, I_D = -50mA		840	1350	
		V_{GS} = -1.2V, I_D = -10mA		1230	2100	
Drain forward voltage	V_{SD}	V_{GS} = 0V, I_S = -300mA	-0.4		-1.2	V
Dynamic Characteristics						
Input capacitance	C_{iss}	V_{DS} = -10V, V_{GS} = 0V, f = 1MHz		38		pF
Output capacitance	C_{oss}			11		
Reverse transfer capacitance	C_{rss}			4		

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

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Forward voltage	V_F	I_F = 100mA			380	mV
		I_F = 500mA			500	mV
Reverse current	I_R	V_R = 10V			15	μA
		V_R = 40V			80	μA
Junction capacitance	C_J	V_R = 0V, f = 1MHz		88		pF

MOSFET Typical Rating and Characteristic Curves (CMBA06CP02A06K-HF)

Fig.1 - On-Region Characteristics

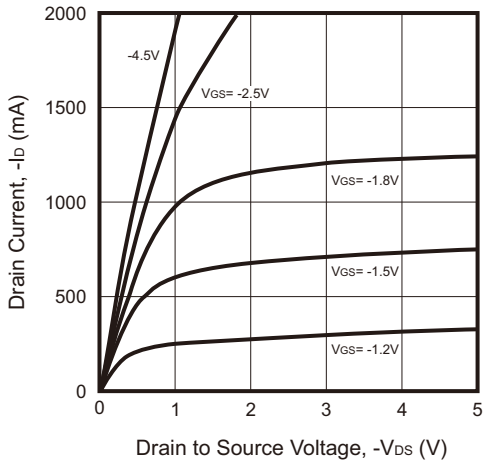


Fig.2 - Transfer Characteristics

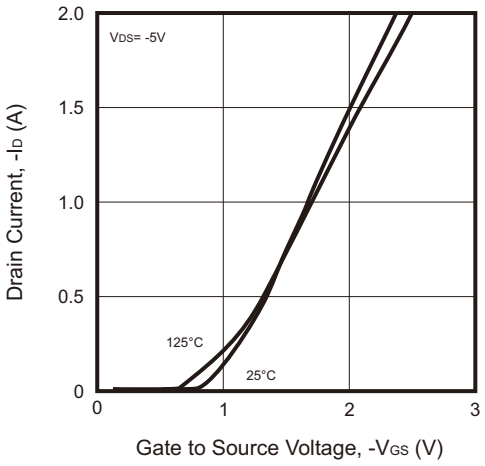


Fig.3 - On-Resistance vs. Drain Current Gate Voltage

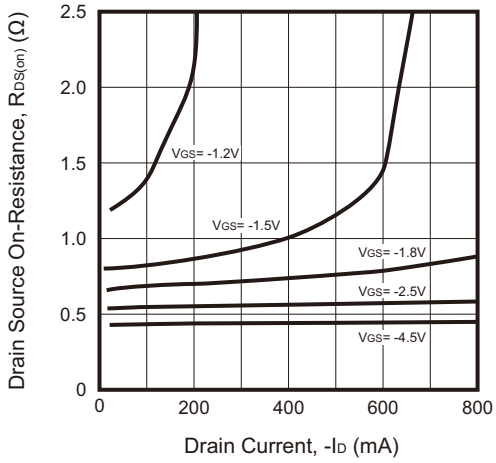


Fig.4 - On-Resistance Variation with Temperature

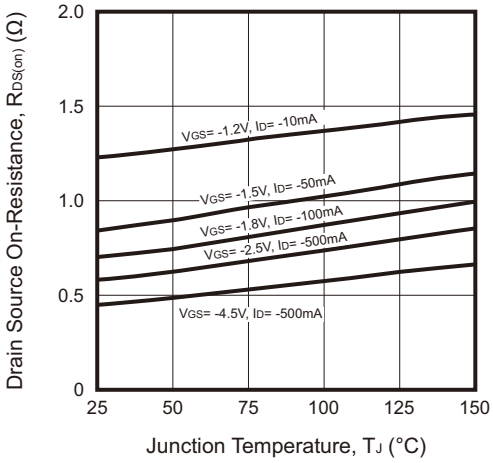


Fig.5 - On-Resistance vs. Tate Source Voltage

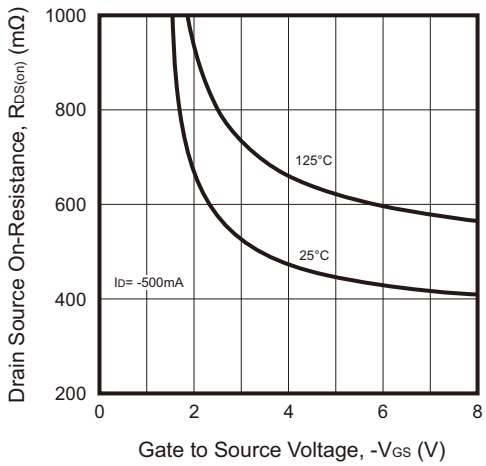
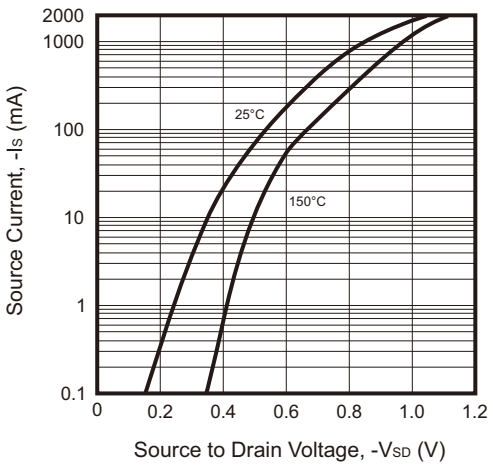


Fig.6 - Diode Forward Voltage vs. Current



MOSFET Typical Rating and Characteristic Curves (CMBA06CP02A06K-HF)

Fig.7 - Gate Threshold Variation vs. Ambient Temperature

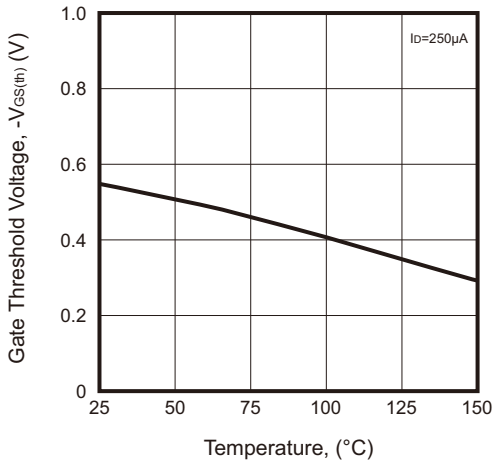


Fig.8 - Breakdown Voltage vs. Temperature

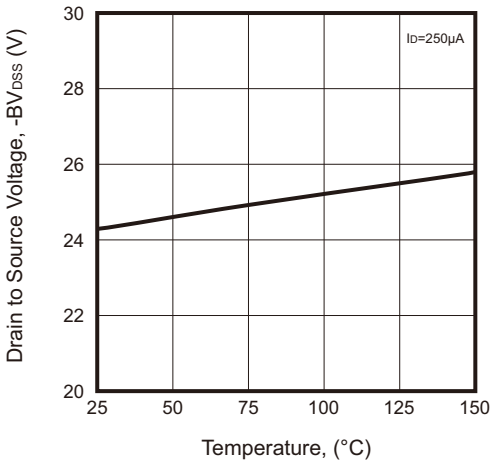
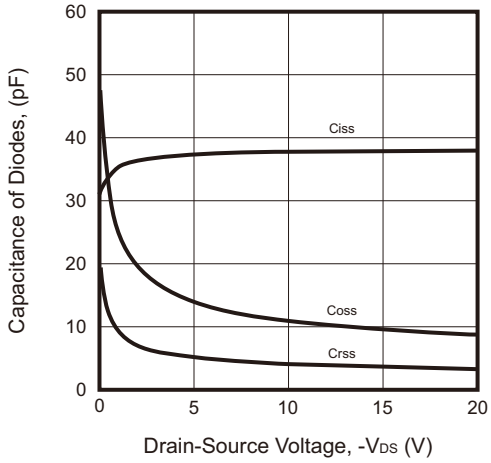


Fig.9 - Capacitance of Diodes



Schottky Typical Rating and Characteristic Curves (CMBA06CP02A06K-HF)

Fig.10 - Forward Characteristics

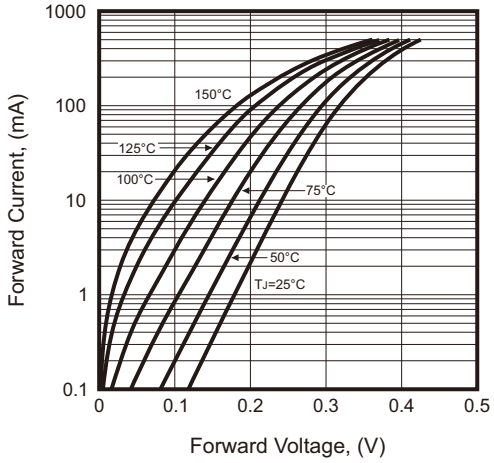


Fig.11 - Reverse Characteristics

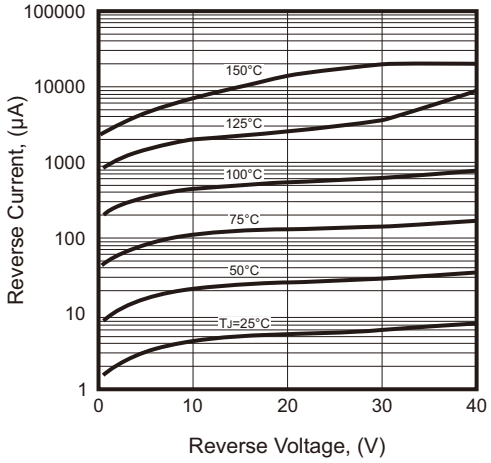
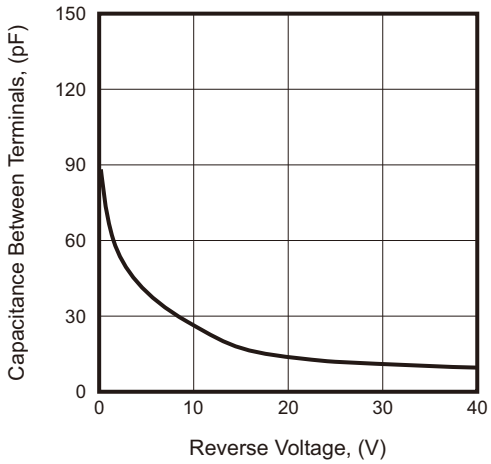
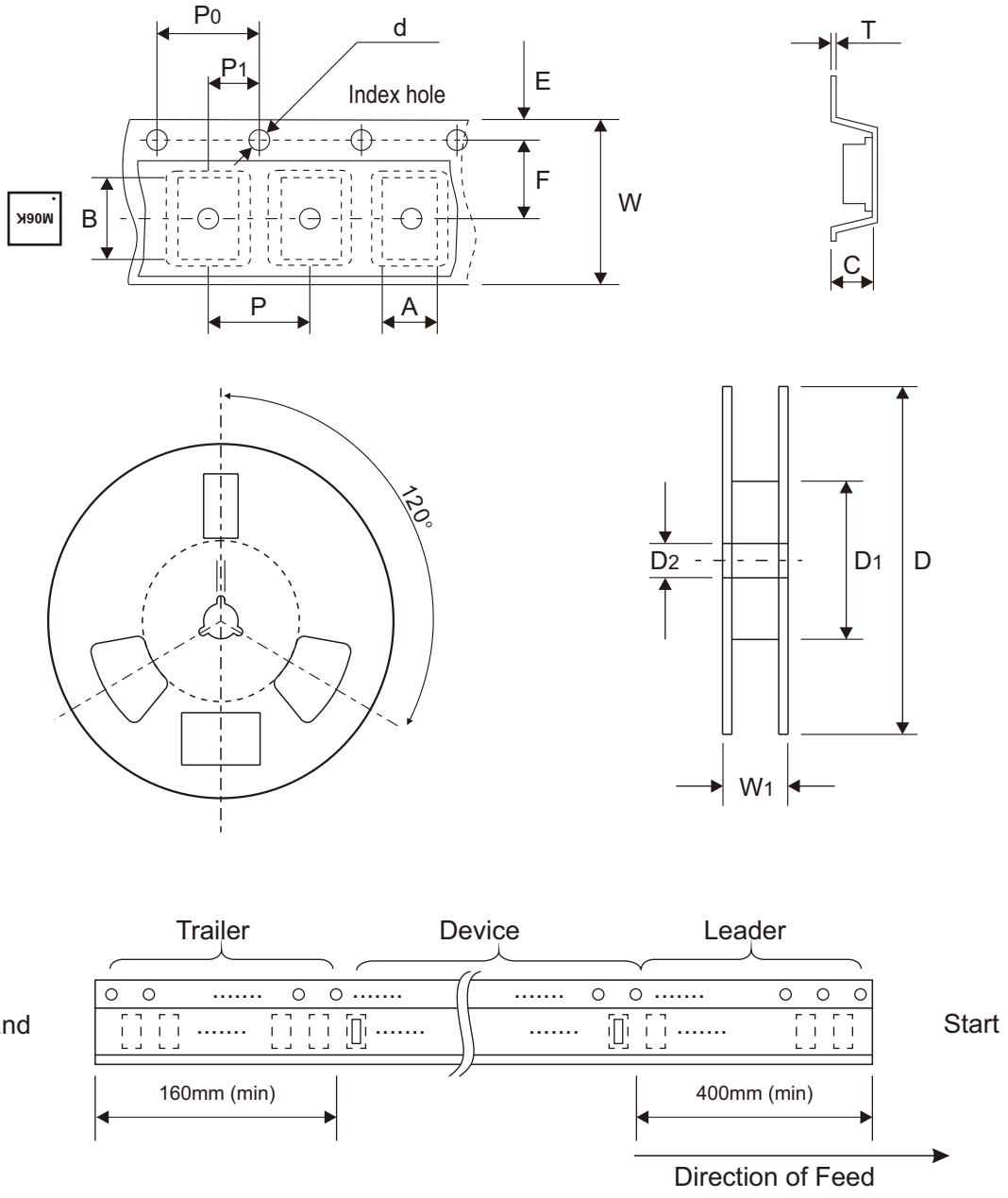


Fig.12 - Typical Capacitance Between Terminals Characteristics



Reel Taping Specification



	SYMBOL	A	B	C	d	D	D1	D2
DFN06P/ DFN1010	(mm)	1.13 ± 0.05	1.13 ± 0.05	0.65 ± 0.05	1.50 + 0.10 − 0.00	178.00 ± 1.00	60.00 ± 0.50	13.50 ± 0.20
	(inch)	0.044 ± 0.002	0.044 ± 0.002	0.026 ± 0.002	0.059 + 0.004 − 0.000	7.008 ± 0.039	2.362 ± 0.020	0.531 ± 0.008

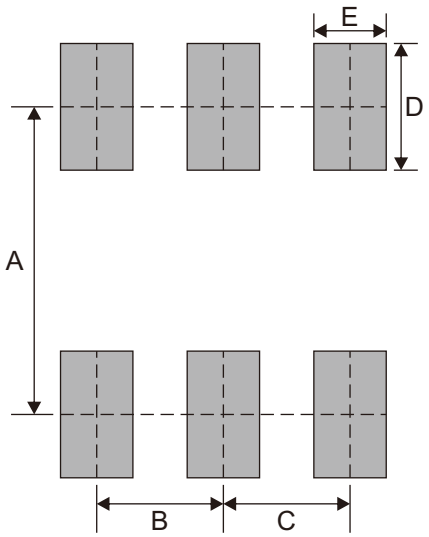
	SYMBOL	E	F	P	P0	P1	T	W	W1
DFN06P/ DFN1010	(mm)	1.75 ± 0.10	3.50 ± 0.05	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	0.20 ± 0.05	8.00 + 0.30 − 0.10	12.00 + 0.50 − 0.00
	(inch)	0.069 ± 0.004	0.138 ± 0.002	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.008 ± 0.002	0.315 + 0.012 − 0.001	0.472 + 0.020 − 0.000

Marking Code

Part Number	Marking Code
CMBA06CP02A06K-HF	.M06K

Suggested P.C.B. PAD Layout

SIZE	DFN06P /DFN1010	
	(mm)	(inch)
A	0.85	0.033
B	0.35	0.014
C	0.35	0.014
D	0.35	0.014
E	0.20	0.008



Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
DFN06P /DFN1010	5,000	7