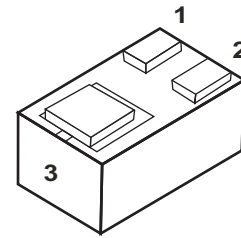


CMS3139KQA-HF

RoHS Device
Halogen Free
P-Channel



Features

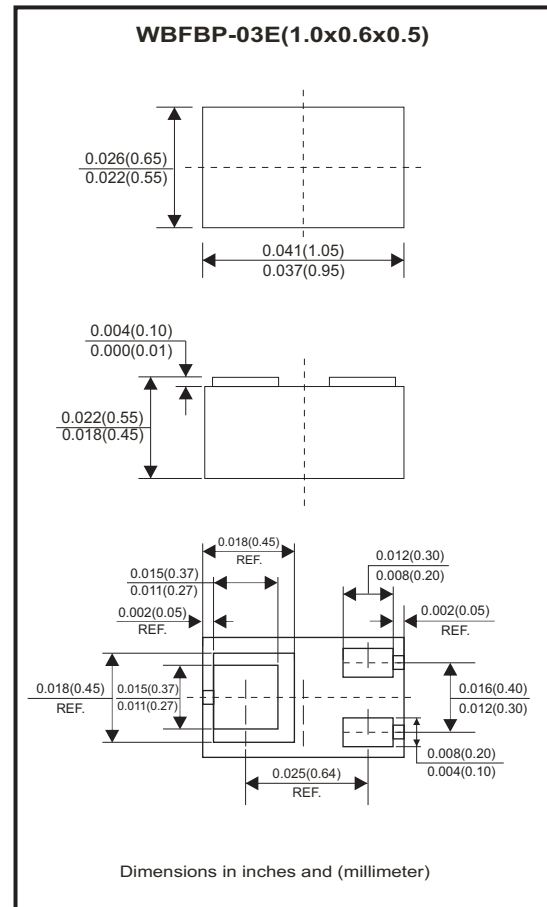
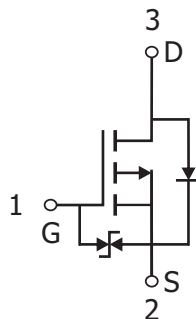
- Lead free product is acquired
- Surface mount package
- P-Channel switch with low $R_{DS(on)}$
- Operated at low logic level gate drive
- ESD protected gate
- Complementary to CMS3134KQA-HF

Mechanical data

- Case: WBFBP-03E/SOT-883 molded plastic encapsulate diodes.
- Mounting position: Any.

Circuit diagram

- 1. GATE
- 2. SOURCE
- 3. DRAIN



Maximum Ratings (at $T_a=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DS}	-20	V
Typical gate-source voltage	V_{GS}	± 12	V
Continuous drain current (note 1)	I_D	-0.66	A
Pulsed drain current ($t_p=10\mu\text{s}$)	I_{DM}	-1.2	A
Power dissipation (note 2)	P_D	100	mW
Thermal resistance from junction to ambient (note 1)	$R_{\theta JA}$	1250	$^\circ\text{C}/\text{W}$
Junction temperature range	T_J	150	$^\circ\text{C}$
Storage temperature range	T_{STG}	-55 ~ +150	$^\circ\text{C}$
Lead temperature for soldering purposes (1/8" from case for 10s)	T_L	260	$^\circ\text{C}$

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

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
STATIC PARAMETERS						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-20			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = -20V, V_{GS} = 0V$			-1	μA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 10V, V_{DS} = 0V$			± 20	μA
Gate threshold voltage (note 2)	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.35		-1.1	V
Drain-source on-resistance (note 2)	$R_{DS(on)}$	$V_{GS} = -4.5V, I_D = -1A$			520	m Ω
		$V_{GS} = -2.5V, I_D = -0.8A$			700	
		$V_{GS} = -1.8V, I_D = -0.5A$		950		
Forward tranconductance (note 2)	g_{FS}	$V_{DS} = -10V, I_D = -0.54A$		1.2		S
Diode forward voltage	V_{SD}	$I_S = -0.5A, V_{GS} = 0V$			-1.2	V
DYNAMIC PARAMETERS (note 4)						
Input capacitance	C_{iss}	$V_{DS} = -16V, V_{GS} = 0V, f = 1MHz$		113	170	pF
Output capacitance	C_{oss}			15	25	
Reverse transfer capacitance	C_{rss}			9	15	
SWITCHING PARAMETERS (note 4)						
Turn-on delay time (note 3)	$t_{d(on)}$	$V_{GS} = -4.5V, V_{DS} = -10V, I_D = -200mA, R_{GEN} = 10\Omega$		9		ns
Turn-on rise time (note 3)	t_r			5.8		
Turn-off delay time (note 3)	$t_{d(off)}$			32.7		
Turn-off fall time (note 3)	t_f			20.3		

Notes:

1. Surface mounted on FR4 board using the minimum recommended pad size.
2. Pulse test: Pulse width = 300 μs , Duty cycle $\leq 2\%$
3. Switching characteristics are independent of operating junction temperature.
4. Guaranteed by design, not subject to producing.

RATING AND TYPICAL CHARACTERISTIC CURVES (CMS3139KQA-HF)

Fig.1 - Output Characteristics

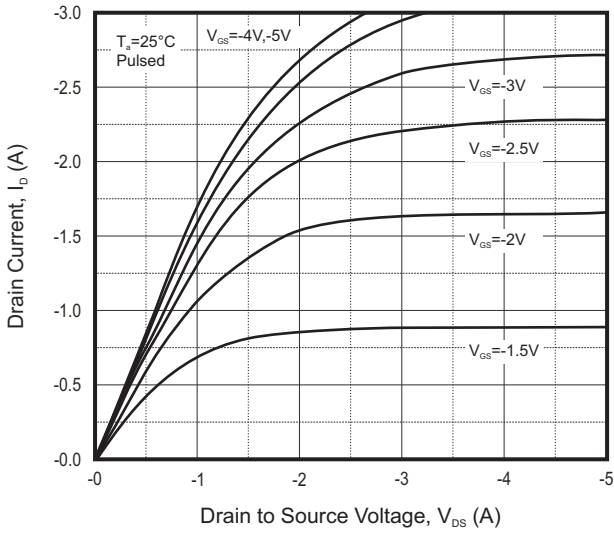


Fig.2 - Transfer Characteristics

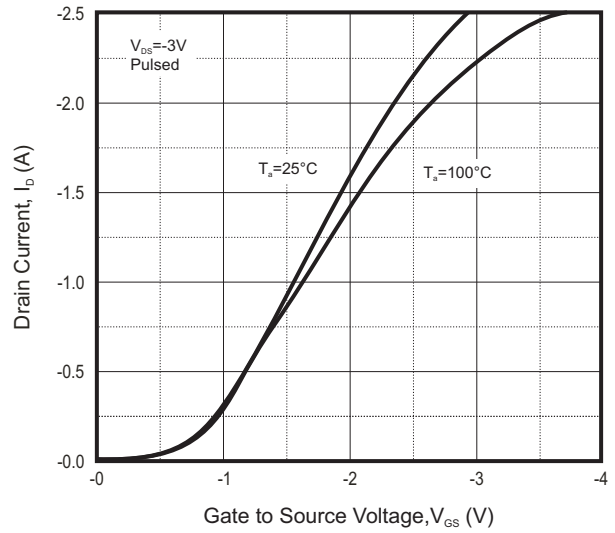


Fig.3 - $R_{DS(ON)} - I_D$

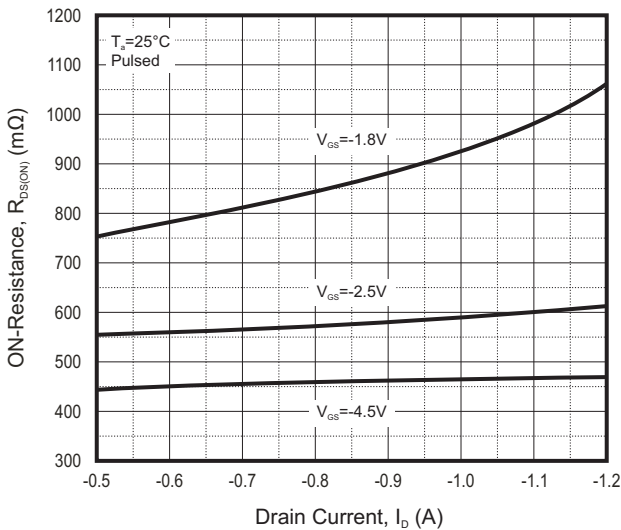


Fig.4 - $R_{DS(ON)} - V_{GS}$

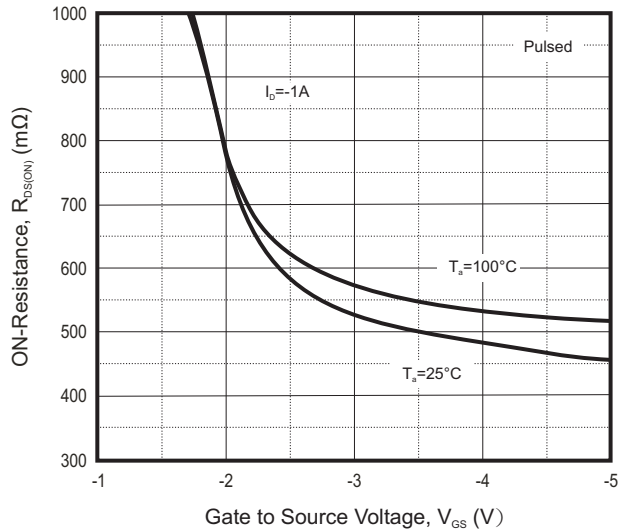


Fig.5 - $I_S - V_{SD}$

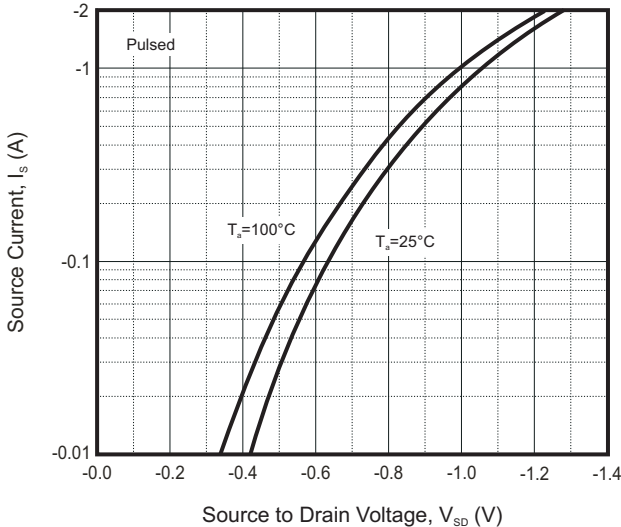
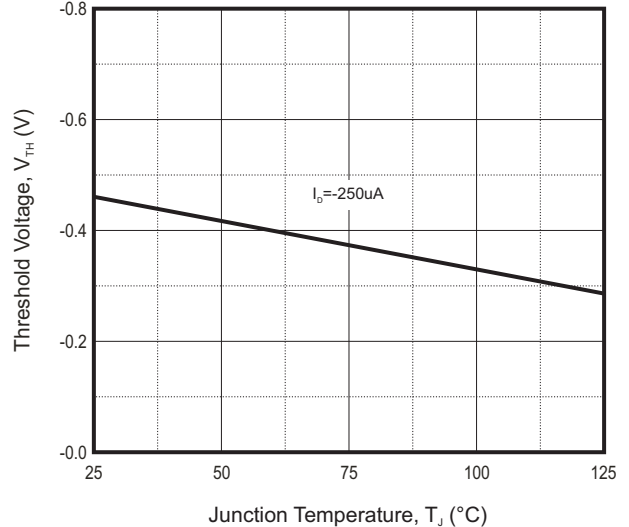
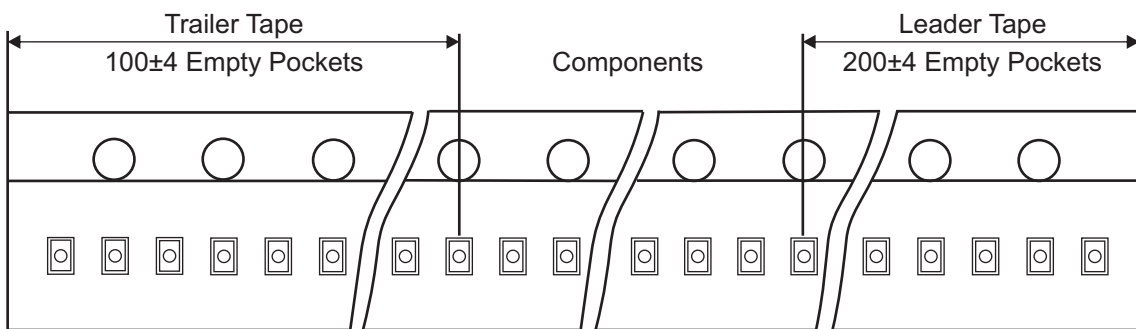
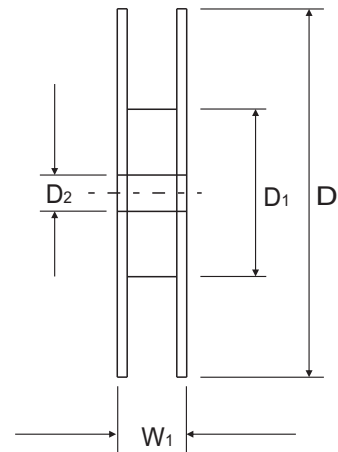
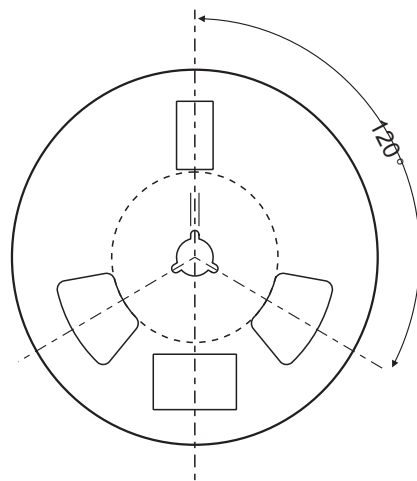
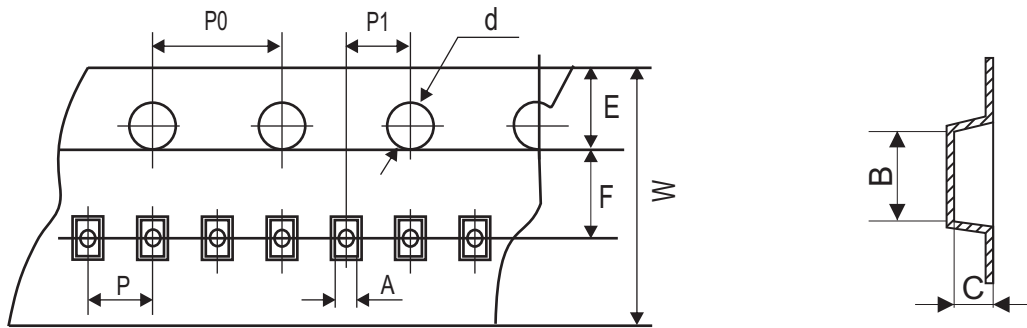


Fig.6 - Threshold Voltage



Reel Taping Specification

39.



WBFBP-03E (1.0x0.6x0.5)	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	0.66 ± 0.05	1.15 ± 0.05	0.66 ± 0.05	1.50 ± 0.10	178.00 ± 2.00	54.40 ± 1.00	13.00 ± 1.00
	(inch)	0.026 ± 0.002	0.045 ± 0.002	0.026 ± 0.002	0.059 ± 0.004	7.008 ± 0.079	2.142 ± 0.039	0.512 ± 0.039

WBFBP-03E (1.0x0.6x0.5)	SYMBOL	E	F	P	P0	P1	W	W1
	(mm)	1.75 ± 0.10	3.50 ± 0.10	2.00 ± 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	0.079 ± 0.004	0.157 ± 0.004	0.079 ± 0.004	0.315 + 0.012 - 0.004	0.484 ± 0.039

Company reserves the right to improve product design, functions and reliability without notice.

REV:A

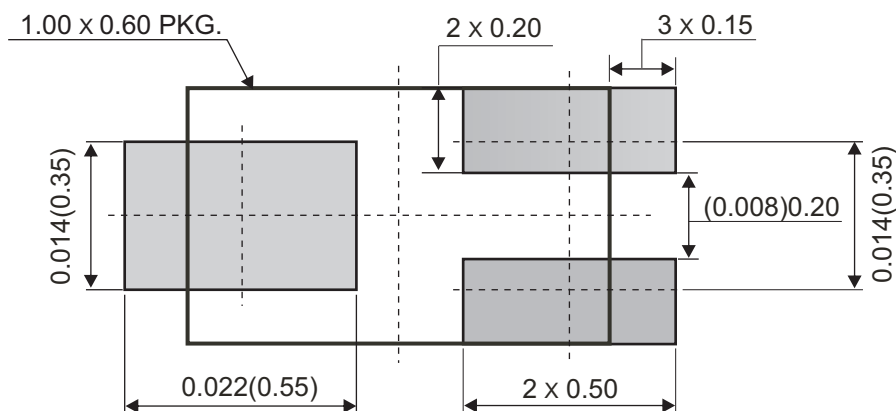
Marking Code

Part Number	Marking Code
CMS3139KQA-HF	39.



39 = Device code
 Solid dot = Pin 1 indicator

Suggested PAD Layout



Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
WBFBP-03E	10,000	7