

# □ MN15G0804

<b>Type</b>		MN15G0804	
<b>ROM (×8-bit)</b>		8 K	
<b>RAM (×4-bit)</b>		512	
<b>Package</b>		QFP044-P-1010E <sup>*Pb free</sup>	
<b>Number of Instructions</b>		103	
<b>Minimum Instruction Execution Time</b>		0.96 ms at 1/4 frequency dividing (at 2.4 V to 5.5 V, 32 kHz) 1.91 ms at 1/8 frequency dividing (at 2.0 V to 5.5 V, 32 kHz)*	
* The lower limit for operation guarantee for EPROM built-in type is 2.3 V. V <sub>RST</sub> when using auto reset.			
<b>Interrupts</b>		• RESET • IRQ1 • IRQ2 • IRQ3	
<b>Timer Counter</b>		<p>Timer counter 0 : 8-bit × 1 (event count, pulse output) Clock source ..... 1/2 of system clock frequency; RMO; TCO2; TCI input</p> <p>Timer counter 1 : 8-bit × 1 (event count, pulse output) Clock source ..... 1/2 of system clock frequency; fout1; TCO0; fxi Possible 16-bit cascade connection with timer counter 0</p> <p>Timer counter 2 : 8-bit × 1 (event count, pulse output) Clock source ..... 1/2 of system clock frequency; RMO; fxi; TCI input</p> <p>Time base timer</p> <p>Watchdog timer</p>	
<b>I/O Pins</b>	<b>I/O</b>	34	<ul style="list-style-type: none"> <li>• Common use : 34</li> <li>• Specified pull-up resistor available : 34 (software programmable)</li> <li>• Specified output architecture available : Nch open drain / push-pull : 34 (software programmable)</li> </ul>
<b>LCD</b>		21 segments × 4 commons (1/2 , 1/3 , 1/4 duty)	
<b>Remote Control Output</b>		Duty and period are variable.	
<b>Notes</b>		Auto reset circuit selectable (mask option)	

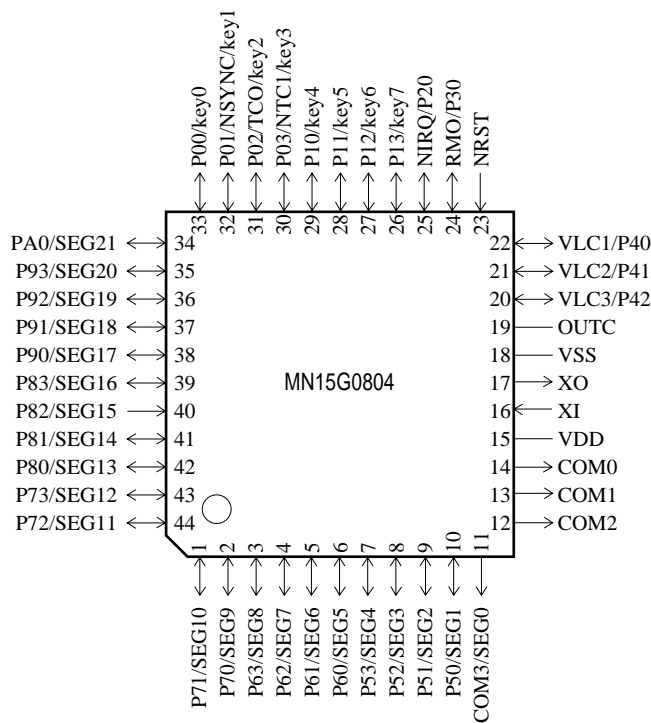
**Electrical Characteristics**

**Supply current**

Parameter	Symbol	Condition	Limit			Unit
			min	typ	max	
Operating supply current	IDD1	$f_{X1} = 32.768 \text{ kHz}$ (1/8 dividing) when using multiply circuit		3.0	5.0	mA
	IDD2	$f_{X1} = 32.768 \text{ kHz}$ (1/8 dividing)		10	40	$\mu\text{A}$
Supply current at HALT	IDD3	$f_{X1} = 32.768 \text{ kHz}$ (1/8 dividing)		3	15	mA
Supply current at STOP	IDD6	$f_{X1} = 32.768 \text{ kHz}$		2.0	5.0	$\mu\text{A}$
	IDD7	$f_{X1} = \text{Stop}$		1.0	3.5	$\mu\text{A}$
Auto reset power consumption	IDD9			3.0	6.0	$\mu\text{A}$

( $T_a = -10^\circ\text{C}$  to  $+60^\circ\text{C}$ ,  $V_{DD} = 3.0 \text{ V}$ ,  $V_{SS} = 0 \text{ V}$ )

**Pin Assignment**



QFP044-P-1010E \*Pb free

**Support Tool**

<b>In-circuit Emulator</b>	PX-ICE1500 + PX-PRB15G1604-QFP044-P-1010E	
<b>EPROM Built-in Type</b>	Type	MN15GP1604
	ROM (× 8-bit)	16 K
	RAM (× 4-bit)	512
	Minimum instruction execution time	0.96 $\mu\text{s}$ at 1/4 frequency dividing (at 2.4 V to 5.5 V, 32 kHz) 1.91 $\mu\text{s}$ at 1/8 frequency dividing (at 2.3 V to 5.5 V, 32 kHz)
	Package	QFP044-P-1010E *Pb free

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