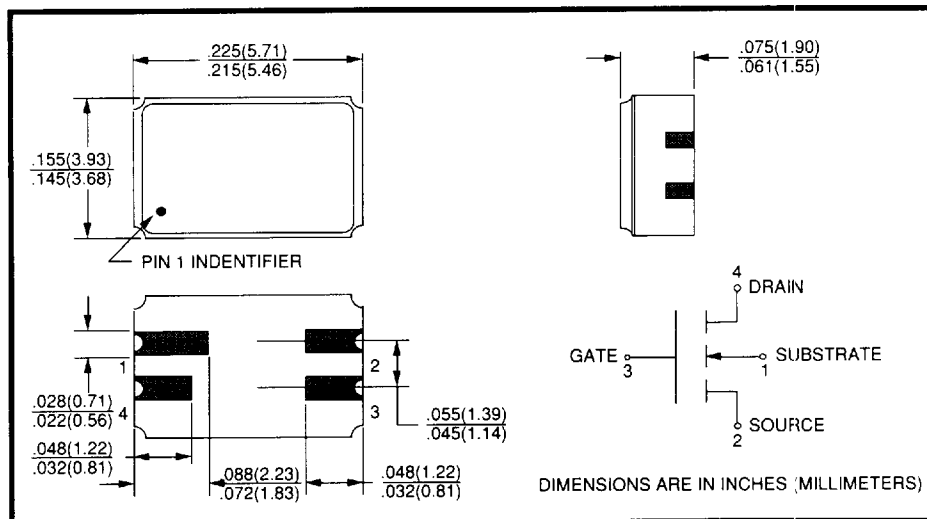
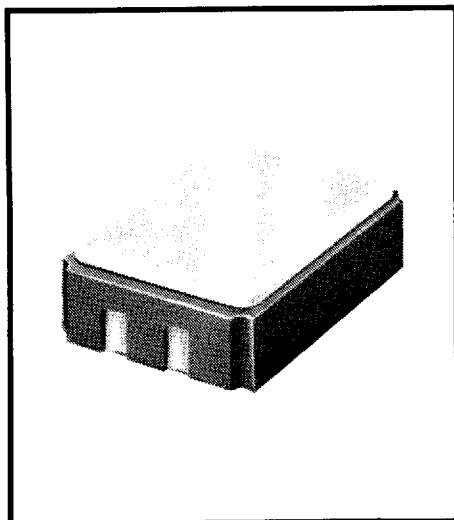


Surface Mount Switching MOSFET Transistor

Type HCT810

T-35-25



Features

- Surface mountable on ceramic or printed circuit board
- Miniature package to minimize circuit board area required
- Electrical performance similar to 3N170
- Hermetically sealed package
- Screened per MIL-S-19500 TX or TXV equivalent levels on request

Description

The HCT810 is a hermetically sealed, ceramic surface-mount n-channel switching MOSFET transistor. The HCT810 electrical characteristics are similar to the JEDEC registered 3N170. The miniature four pin ceramic package is ideal for designs where board space and device weight are important design considerations. High reliability processing per MIL-S-19500 TX or TXV equivalent levels on request.

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

Drain-Source Voltage	25 V
Drain-Gate Voltage	± 35 V
Gate-Source Voltage	± 35 V
Drain Current	10.0 mA
Operating Junction Temperature (T_J)	-65°C to $+150^\circ\text{C}$
Storage Junction Temperature (T_{stg})	-65°C to $+175^\circ\text{C}$
Power Dissipation @ $T_A = 25^\circ\text{C}$	0.3 W
Power Dissipation @ $T_S^{(1)} = 25^\circ\text{C}$	0.4 W ⁽²⁾
Soldering Temperature (vapor phase reflow for 30 sec.)	215°C
Soldering Temperature (heated collet for 5 sec.)	260°C

Notes:

- (1) T_S = Substrate temperature that the chip carrier is mounted on.
- (2) Derate linearly 3.2 mW/ $^\circ\text{C}$ above 25°C .

Type HCT810

Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
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Off Characteristics

$V_{(BR)DSX}$	Drain Source Breakdown Voltage	25			V	$I_D = 10.0 \mu\text{A}$, $V_{GS} = 0$
I_{DSS}	Zero-Gate-Voltage Drain Current			10.0	nA	$V_{DS} = 10 \text{ V}$, $V_{GS} = 0$
				1.00	μA	$V_{DS} = 10 \text{ V}$, $V_{GS} = 0$, $T_A = 125^\circ\text{C}$
I_{GSS}	Gate Reverse Current			500	pA	$V_{GS} = -35 \text{ V}$, $V_{DS} = 0$
				1.00	nA	$V_{GS} = -35 \text{ V}$, $V_{DS} = 0$, $T_A = 125^\circ\text{C}$

On Characteristics

$V_{GS(Th)}$	Gate Threshold Voltage	1.0		2.0	V	$V_{DS} = 10.0 \text{ V}$, $I_D = 10.0 \mu\text{A}$
$V_{DS(on)}$	Drain-Source On-Voltage			2.0	V	$I_D = 10.0 \text{ mA}$, $V_{GS} = 10.0 \text{ V}$
$I_{D(on)}$	On-State Drain Current	10.0			mA	$V_{GS} = 10 \text{ V}$, $V_{DS} = 10 \text{ V}$

Small-Signal Characteristics

$r_{d(on)}$	Drain-Source Resistance			200	Ω	$V_{GS} = 10.0 \text{ V}$, $I_D = 10.0 \text{ mA}$, $f = 1.00 \text{ kHz}$
$ y_{fs} $	Forward Transfer Admittance	1000			μmhos	$V_{DS} = 10 \text{ V}$, $I_D = 2.0 \text{ mA}$, $f = 1.0 \text{ kHz}$
C_{iss}	Input Capacitance			5.0	pF	$V_{DS} = 10.0 \text{ V}$, $V_{GS} = 0$, $f = 1.0 \text{ MHz}$
C_{rss}	Reverse Transfer Capacitance			1.3	pF	$V_{DS} = 0$, $V_{GS} = 0$, $f = 1.0 \text{ MHz}$
$C_{d(sub)}$	Drain-Substrate Capacitance			5.0	pF	$V_{D(SUB)} = 10.0 \text{ V}$, $f = 1.0 \text{ MHz}$

Switching Characteristics

$t_{d(on)}$	Turn-On Delay Time			3.0	ns	$V_{DD} = 10.0 \text{ V}$, $I_{D(on)} = 10.0 \text{ mA}$ $V_{GS(on)} = 10.0 \text{ V}$, $V_{GS(off)} = 0$, $R_G = 50 \Omega$
t_r	Rise Time			10.0	ns	
t_{off}	Turn-Off Delay Time			3.0	ns	
t_f	Fall Time			15	ns	

(3) Pulse Test: Pulse Width $\leq 300 \mu\text{s}$, Duty Cycle $\leq 2.0\%$

Optek reserves the right to make changes at any time in order to improve design and to supply the best product possible.

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