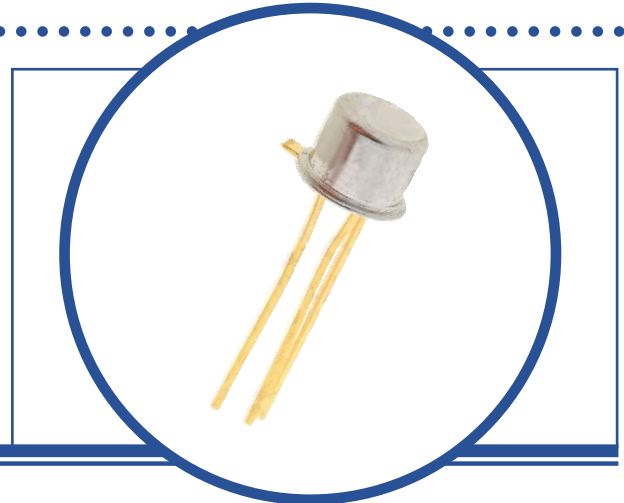


# N-CHANNEL ENHANCEMENT MODE MOSFET

## VN10KE

- Low  $R_{DS(on)}$ ,  $V_{GS(th)}$ ,  $C_{ISS}$  And Fast Switching Speeds
- Hermetic TO-52 Metal package.
- Ideally Suited For Power Supply Circuits, Switching And Driver (Relay, Solenoid, Lamp etc..) Applications
- Screening Options Available



### ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise stated)

$V_{DS}$	Drain – Source Voltage		60V
$V_{GS}$	Gate – Source Voltage		+15V, -0.3V
$I_D$	Continuous Drain Current	$T_A = 25^\circ\text{C}$	0.17A
		$T_A = 100^\circ\text{C}$	0.11A
$I_{DM}$	Pulsed Drain Current <sup>(1)</sup>		1.0A
$P_D$	Total Power Dissipation at	$T_A = 25^\circ\text{C}$	312.5mW
		Derate Above $25^\circ\text{C}$	2.5mW/ $^\circ\text{C}$
$T_J$	Operating Temperature Range		-55 to +150 $^\circ\text{C}$
$T_{stg}$	Storage Temperature Range		-55 to +150 $^\circ\text{C}$

### THERMAL PROPERTIES

Symbols	Parameters	Min.	Typ.	Max.	Units
$R_{\theta JA}$	Thermal Resistance, Junction To Ambient			400	$^\circ\text{C/W}$

#### Notes

(1) Repetitive Rating: Pulse width limited by maximum junction temperature

# N-CHANNEL ENHANCEMENT MODE MOSFET VN10KE

## ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise stated)

Symbols	Parameters	Test Conditions	Min.	Typ.	Max.	Units
$BV_{DSS}$	Drain-Source Breakdown Voltage	$V_{GS} = 0$ $I_D = 100\mu\text{A}$	60			V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}$ $I_D = 1.0\text{mA}$	0.8		2.5	V
$I_{GSS}$	Gate-Source Leakage Current	$V_{GS} = 15\text{V}$ $V_{DS} = 0\text{V}$			100	nA
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS} = 48\text{V}$ $V_{GS} = 0$			10	$\mu\text{A}$
		$T_J = 125^\circ\text{C}$			500	
$I_{D(ON)}^{(2)}$	On-State Drain Current	$V_{DS} = 10\text{V}$ $V_{GS} = 10\text{V}$	0.75			A
$R_{DS(on)}^{(2)}$	Static Drain-Source On-State Resistance	$V_{GS} = 5\text{V}$ $I_D = 0.2\text{A}$			7.5	$\Omega$
		$V_{GS} = 10\text{V}$ $I_D = 0.5\text{A}$			5	
		$T_J = 125^\circ\text{C}$			9	
$g_{fs}^{(2)}$	Forward Transconductance	$V_{DS} = 10\text{V}$ $I_D = 0.5\text{A}$	100			$\text{m}\Omega$
$g_{os}^{(2)}$	Common Source Output Conductance	$V_{DS} = 7.5\text{V}$ $I_D = 50\text{mA}$		0.2		

## DYNAMIC CHARACTERISTICS

$C_{iss}$	Input Capacitance	$V_{GS} = 0$			60	$\text{pF}$
$C_{oss}$	Output Capacitance	$V_{DS} = 25\text{V}$			25	
$C_{rss}$	Reverse Transfer Capacitance	$f = 1.0\text{MHz}$			5	
$t_{d(on)}$	Turn-On Delay Time	$V_{DD} = 15\text{V}$ , $R_L = 23\Omega$ , $R_G = 50\Omega$			10	ns
$t_{d(off)}$	Turn-Off Delay Time	$I_D = 1.0\text{A}$ , $V_{GEN} = 10\text{V}$			10	

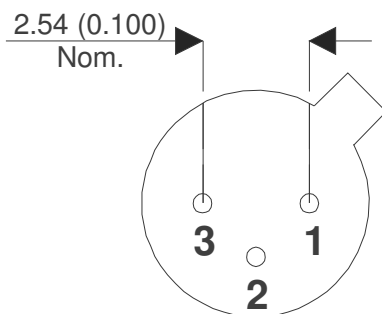
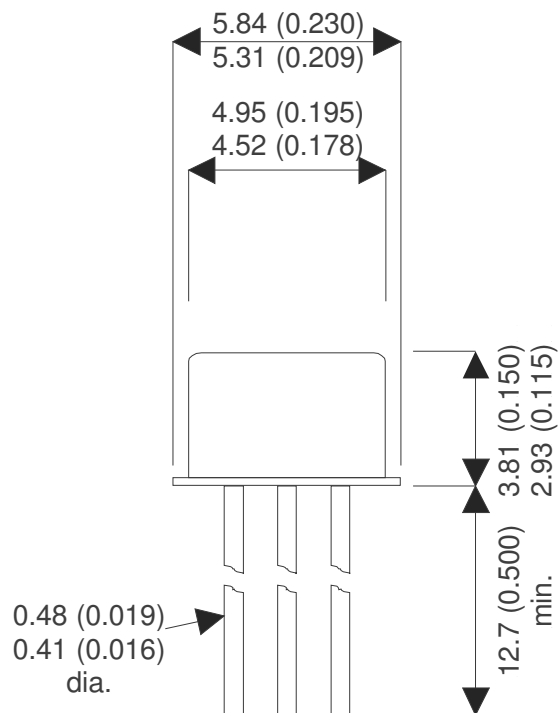
### Notes

(2) Pulse Width  $\leq 300\mu\text{s}$ ,  $\delta \leq 2\%$

# N-CHANNEL ENHANCEMENT MODE MOSFET VN10KE

## MECHANICAL DATA

Dimensions in mm (inches)



### TO-52 PACKAGE (TO-206AC) Underside View

Pin 1 - Source

Pin 2 - Gate

Pin 3 - Case & Drain