

## Thermal Characteristics

Package	$I_D$ (continuous) <sup>†</sup> (mA)	$I_D$ (pulsed) (A)	Power Dissipation @ $T_c = 25^\circ\text{C}$ (W)	$\theta_{jc}$ ( $^\circ\text{C/W}$ )	$\theta_{ja}$ ( $^\circ\text{C/W}$ )	$I_{DR}$ <sup>†</sup> (mA)	$I_{DRM}$ (A)
TO-92	320	-3.5	1.0	125	170	320	-3.5

### Notes:

<sup>†</sup>  $I_D$  (continuous) is limited by max rated  $T_j$ .

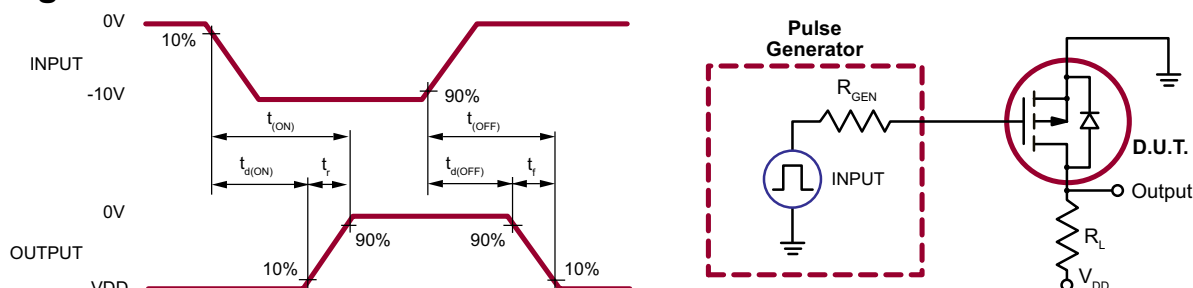
## Electrical Characteristics ( $T_A = 25^\circ\text{C}$ unless otherwise specified)

Sym	Parameter	Min	Typ	Max	Units	Conditions
$BV_{DSS}$	Drain-to-source breakdown voltage	-60	-	-	V	$V_{GS} = 0V, I_D = -2.0mA$
$V_{GS(th)}$	Gate threshold voltage	-1.0	-	-2.4	V	$V_{GS} = V_{DS}, I_D = -1.0mA$
$\Delta V_{GS(th)}$	Change in $V_{GS(th)}$ with temperature	-	-	-5.0	mV/ $^\circ\text{C}$	$V_{GS} = V_{DS}, I_D = -1.0mA$
$I_{GSS}$	Gate body leakage	-	-	-100	nA	$V_{GS} = \pm 20V, V_{DS} = 0V$
$I_{DSS}$	Zero gate voltage drain current	-	-	-10	$\mu\text{A}$	$V_{GS} = 0V, V_{DS} = \text{Max Rating}$
		-	-	-1.0	mA	$V_{DS} = 0.8 \text{ Max Rating}, V_{GS} = 0V, T_A = 125^\circ\text{C}$
$I_{D(ON)}$	ON-state drain current	-0.4	-0.6	-	A	$V_{GS} = -5.0V, V_{DS} = -25V$
		-1.5	-2.5	-		$V_{GS} = -10V, V_{DS} = -25V$
$R_{DS(ON)}$	Static drain-to-source on-state resistance	-	5.0	7.0	$\Omega$	$V_{GS} = -5.0V, I_D = -250mA$
		-	3.0	3.5		$V_{GS} = -10V, I_D = -750mA$
$\Delta R_{DS(ON)}$	Change in $R_{DS(ON)}$ with temperature	-	-	1.7	%/ $^\circ\text{C}$	$V_{GS} = -10V, I_D = -750mA$
$G_{FS}$	Forward transconductance	300	400	-	mmho	$V_{DS} = -25V, I_D = -750mA$
$C_{ISS}$	Input capacitance	-	80	150	pF	$V_{GS} = 0V,$ $V_{DS} = -25V,$ $f = 1.0MHz$
$C_{OSS}$	Common source output capacitance	-	50	85		
$C_{RSS}$	Reverse transfer capacitance	-	15	35		
$t_{d(ON)}$	Turn-on delay time	-	-	10	ns	$V_{DD} = -25V,$ $I_D = -1.0A,$ $R_{GEN} = 25\Omega$
$t_r$	Rise time	-	-	15		
$t_{d(OFF)}$	Turn-off delay time	-	-	20		
$t_f$	Fall time	-	-	15		
$V_{SD}$	Diode forward voltage drop	-	-	-1.8	V	$V_{GS} = 0V, I_{SD} = -1.0A$
$t_{rr}$	Reverse recovery time	-	300	-	ns	$V_{GS} = 0V, I_{SD} = -1.0A$

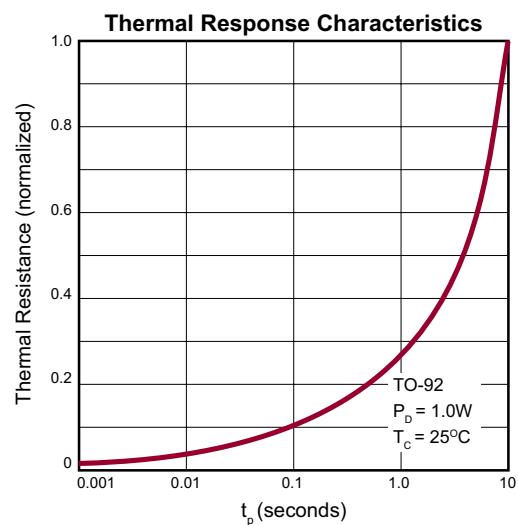
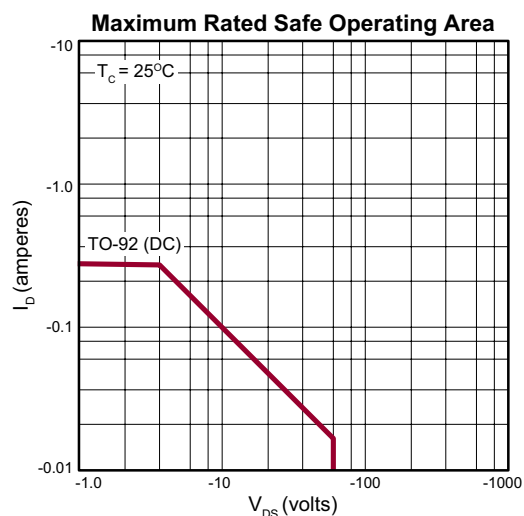
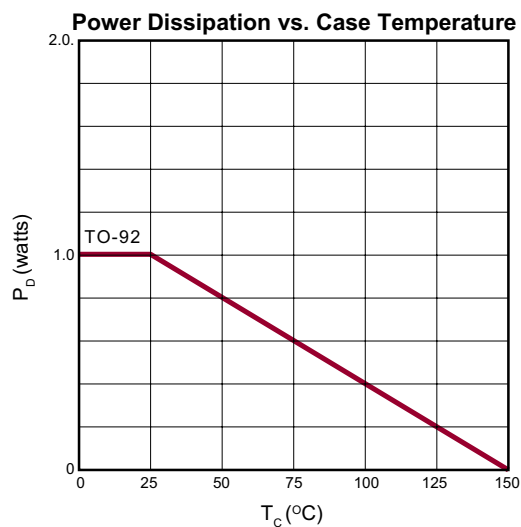
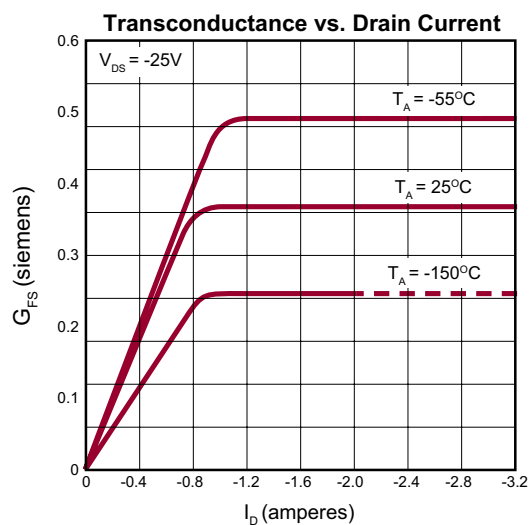
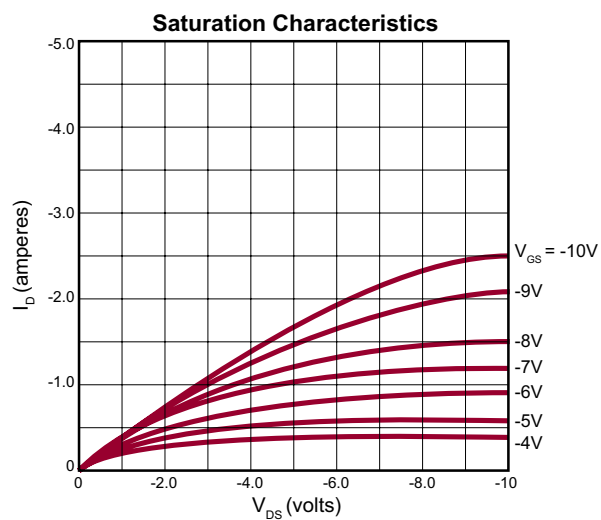
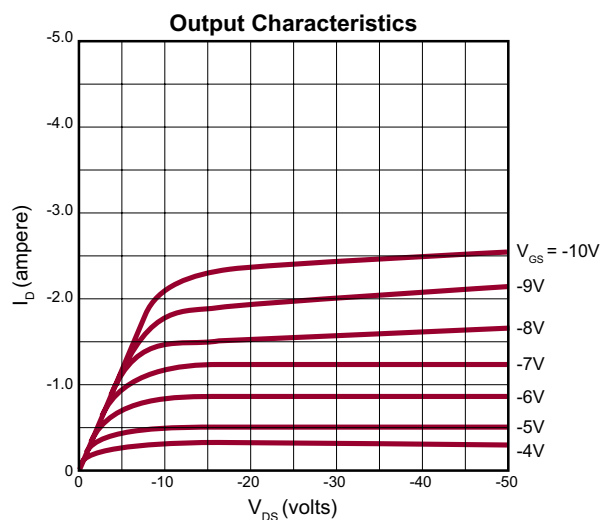
### Notes:

1. All D.C. parameters 100% tested at  $25^\circ\text{C}$  unless otherwise stated. (Pulse test: 300 $\mu\text{s}$  pulse, 2% duty cycle.)
2. All A.C. parameters sample tested.

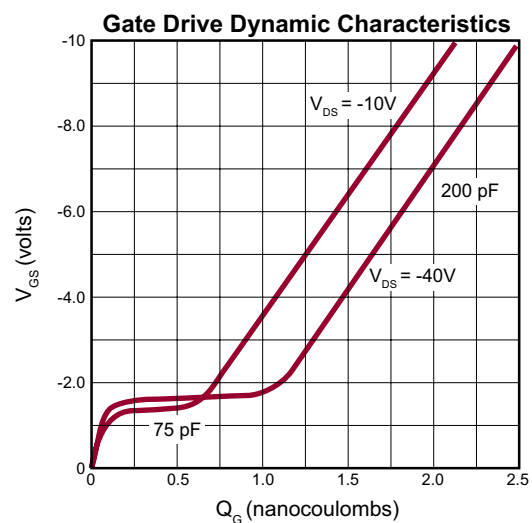
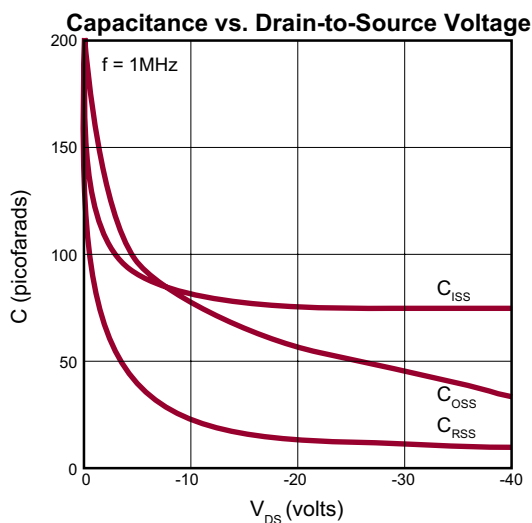
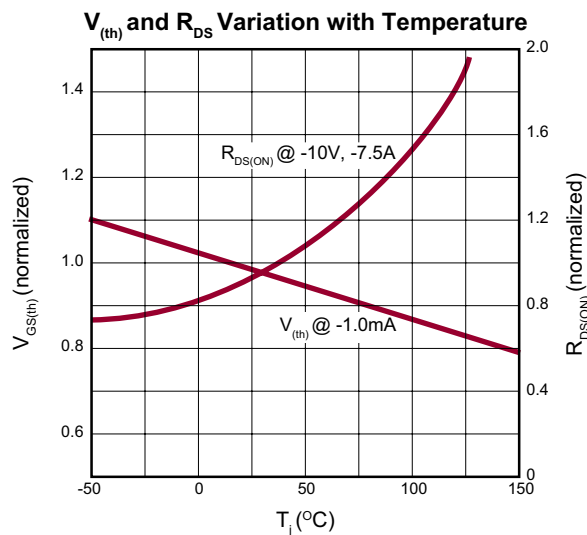
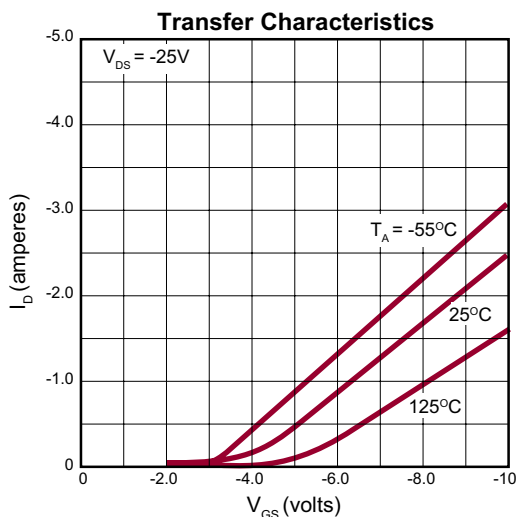
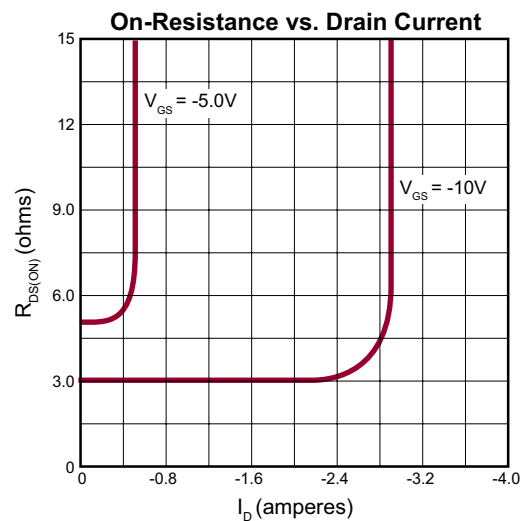
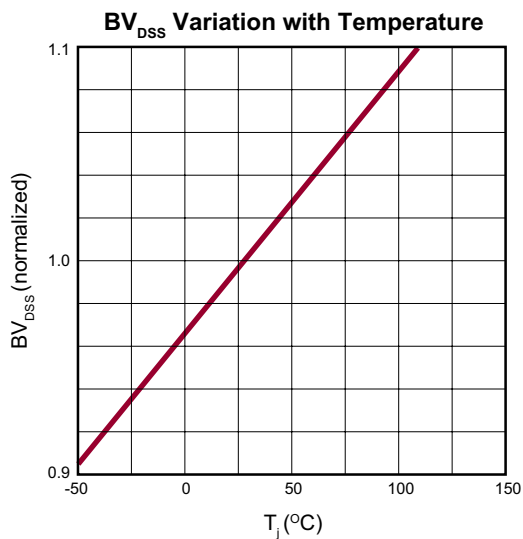
## Switching Waveforms and Test Circuit



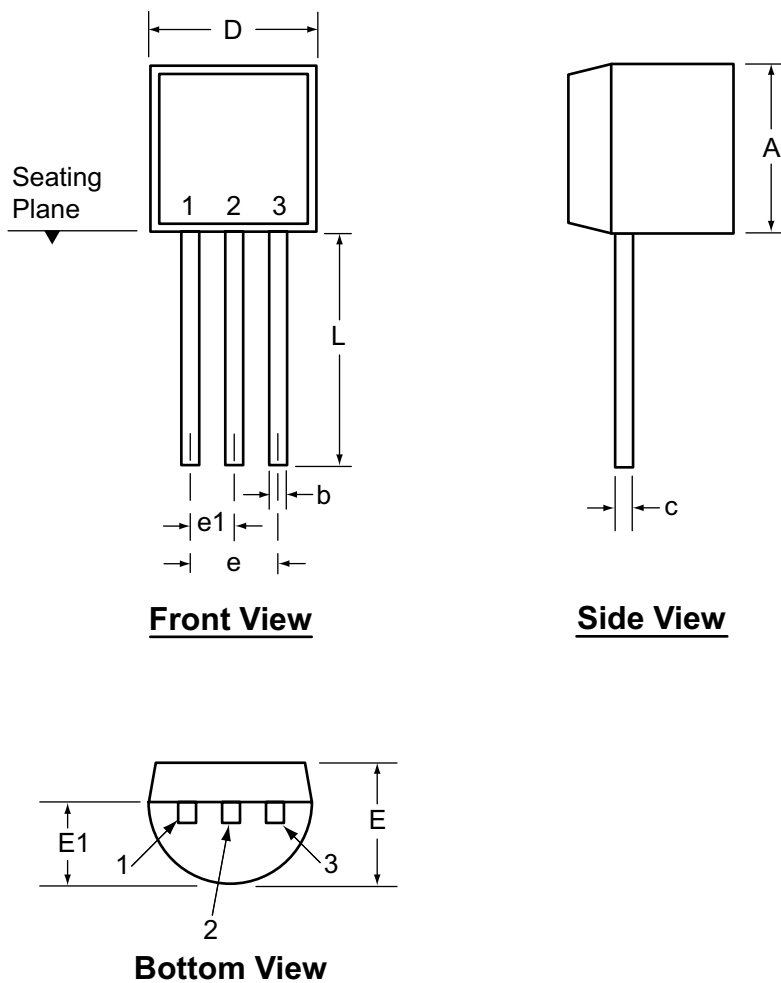
## Typical Performance Curves



## Typical Performance Curves (cont.)



### 3-Lead TO-92 Package Outline (N3)



Symbol		A	b	c	D	E	E1	e	e1	L
Dimensions (inches)	MIN	.170	.014 <sup>†</sup>	.014 <sup>†</sup>	.175	.125	.080	.095	.045	.500
	NOM	-	-	-	-	-	-	-	-	-
	MAX	.210	.022 <sup>†</sup>	.022 <sup>†</sup>	.205	.165	.105	.105	.055	.610*

JEDEC Registration TO-92.

\* This dimension is not specified in the JEDEC drawing.

† This dimension differs from the JEDEC drawing.

**Drawings not to scale.**

**Supertex Doc.#:** DSPD-3TO92N3, Version E041009.

(The package drawing(s) in this data sheet may not reflect the most current specifications. For the latest package outline information go to <http://www.supertex.com/packaging.html>.)

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