

Thermal Characteristics

Package	I_D (continuous) [†] (A)	I_D (pulsed) (A)	Power Dissipation @ $T_A = 25^\circ\text{C}$ (W)	θ_{ja} ($^\circ\text{C/W}$)	I_{DR}^{\dagger} (A)	I_{DRM} (A)
TO-92	0.7	4.6	0.74	132	0.7	4.6

Notes:

[†] I_D (continuous) is limited by max rated T_j .

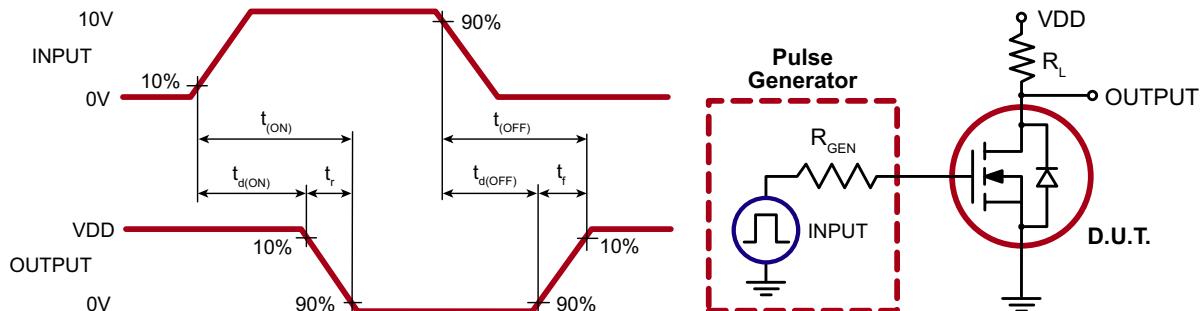
Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise specified)

Sym	Parameter	Min	Typ	Max	Units	Conditions
BV_{DSS}	Drain-to-source breakdown voltage	40	-	-	V	$V_{GS} = 0V, I_D = 2.0mA$
$V_{GS(th)}$	Gate threshold voltage	0.6	-	1.6	V	$V_{GS} = V_{DS}, I_D = 1.0mA$
$\Delta V_{GS(th)}$	Change in $V_{GS(th)}$ with temperature	-	-3.8	-4.5	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	μA	$V_{GS} = 0V, V_{DS} = \text{Max Rating}$
		-	-	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	1.5	2.1	-	A	$V_{GS} = 5.0V, V_{DS} = 20V$
		4.0	7.0	-		$V_{GS} = 10V, V_{DS} = 20V$
$R_{DS(ON)}$	Static drain-to-source on-state resistance	-	1.0	1.6	Ω	$V_{GS} = 5.0V, I_D = 0.75A$
		-	0.6	0.75		$V_{GS} = 10V, I_D = 1.5A$
$\Delta R_{DS(ON)}$	Change in $R_{DS(ON)}$ with temperature	-	0.5	0.75	%/ $^\circ\text{C}$	$V_{GS} = 10V, I_D = 1.5A$
G_{FS}	Forward transconductance	500	800	-	mmho	$V_{DS} = 20V, I_D = 1.5A$
C_{ISS}	Input capacitance	-	140	190	pF	$V_{GS} = 0V, V_{DS} = 20V, f = 1.0MHz$
C_{OSS}	Common source output capacitance	-	75	110		
C_{RSS}	Reverse transfer capacitance	-	25	50		
$t_{d(ON)}$	Turn-on delay time	-	-	10	ns	$V_{DD} = 20V, I_D = 0.5A, R_{GEN} = 25\Omega$
t_r	Rise time	-	-	6.0		
$t_{d(OFF)}$	Turn-off delay time	-	-	25		
t_f	Fall time	-	-	20		
V_{SD}	Diode forward voltage drop	-	1.2	1.8	V	$V_{GS} = 0V, I_{SD} = 1.5A$
t_{rr}	Reverse recovery time	-	300	-	ns	$V_{GS} = 0V, I_{SD} = 1.0A$

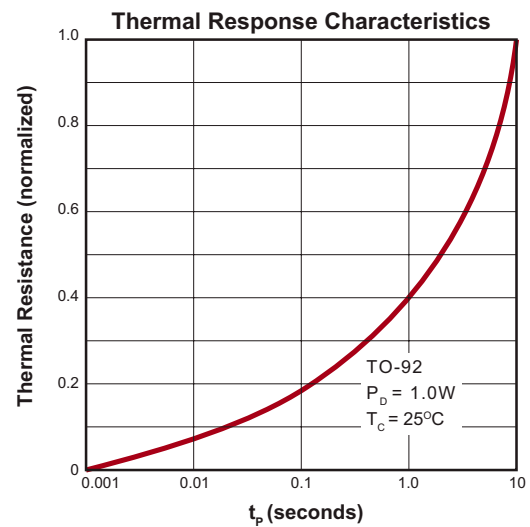
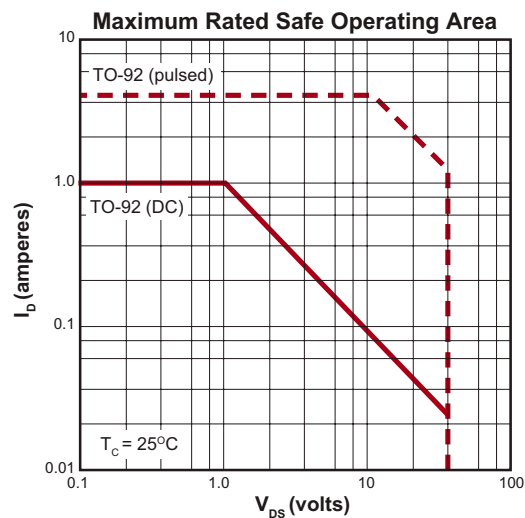
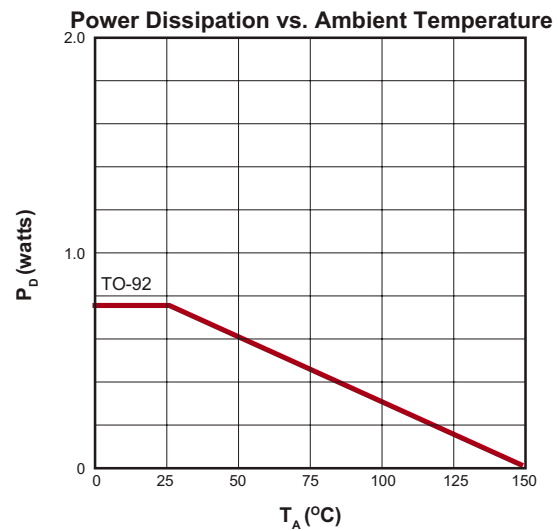
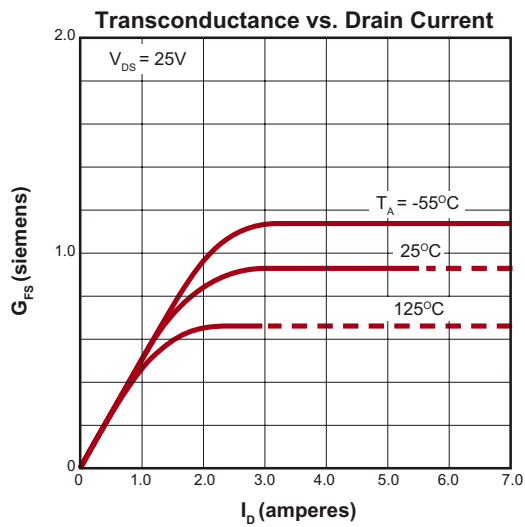
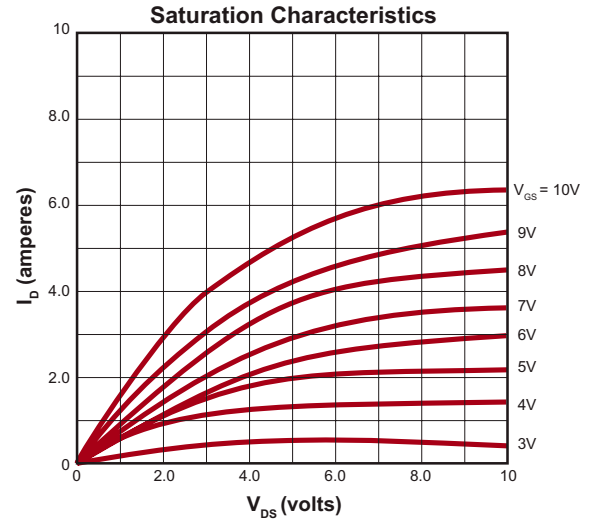
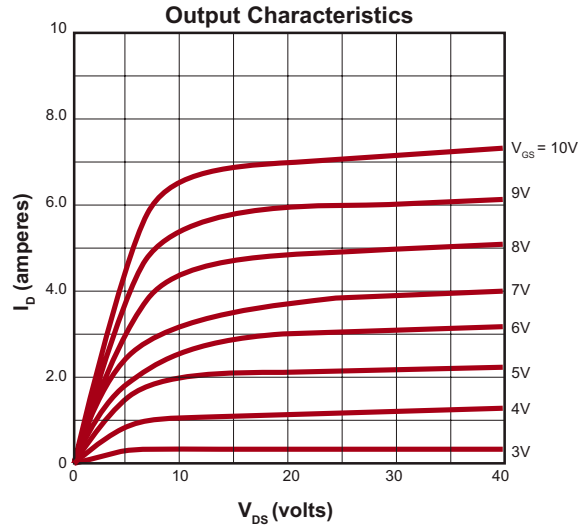
Notes:

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

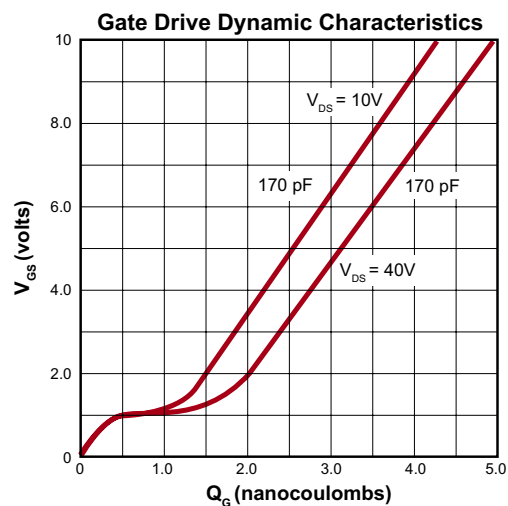
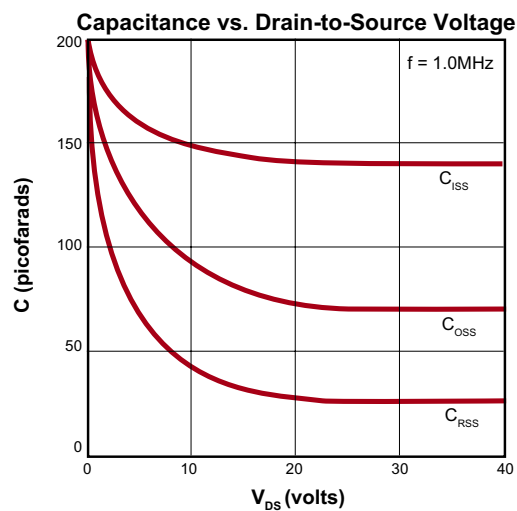
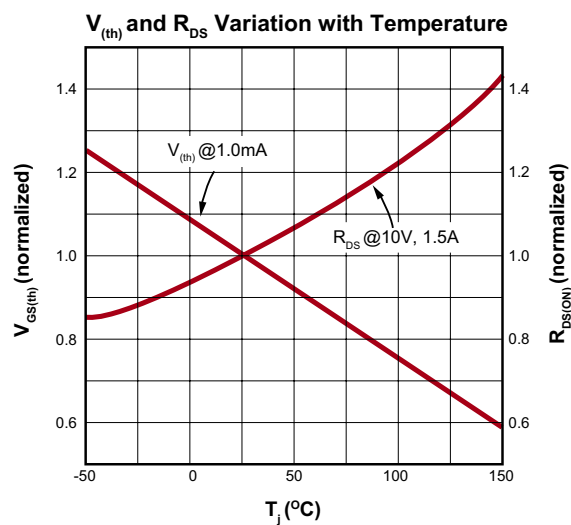
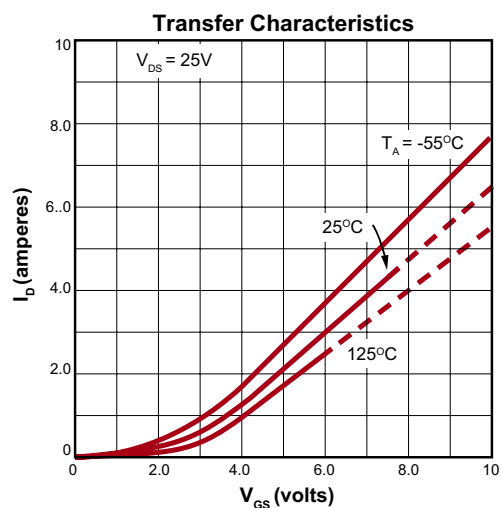
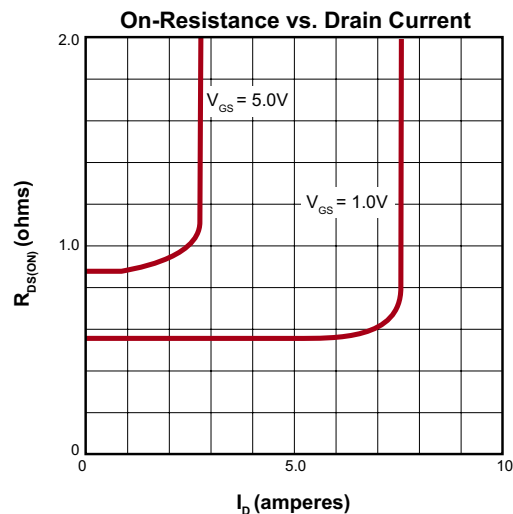
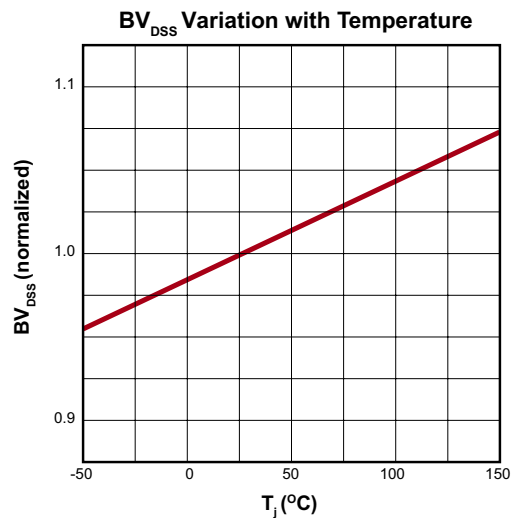
Switching Waveforms and Test Circuit



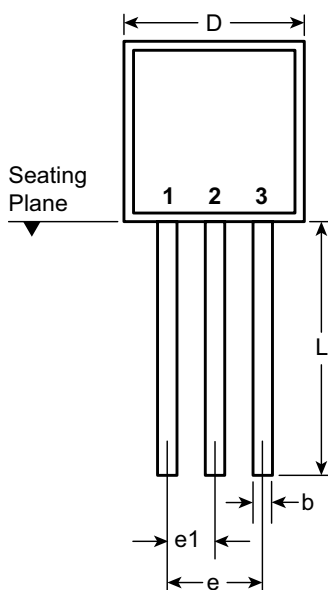
Typical Performance Curves



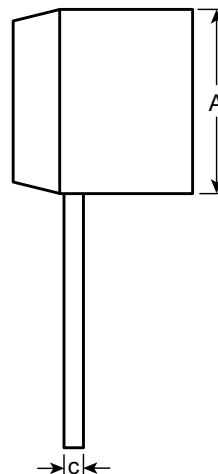
Typical Performance Curves (cont.)



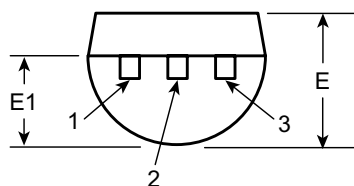
3-Lead TO-92 Package Outline (N3)



Front View



Side View



Bottom View

Symbol		A	b	c	D	E	E1	e	e1	L
Dimensions (inches)	MIN	.170	.014 [†]	.014 [†]	.175	.125	.080	.095	.045	.500
	NOM	-	-	-	-	-	-	-	-	-
	MAX	.210	.022 [†]	.022 [†]	.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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