

Thermal Characteristics

Package	I_D (continuous)* (A)	I_D (pulsed) (A)	Power Dissipation @ $T_c = 25^\circ\text{C}$ (W)	$I_{DR}^\dagger$ (A)	I_{DRM} (A)
TO-92	1.2	8.0	1.0	1.2	8.0
TO-243AA	1.5	8.0	1.6 ($T_A = 25^\circ$)	1.5	8.0

Notes:

* I_D (continuous) is limited by max rated T_j , $T_a = 25^\circ\text{C}$.

† Total for package.

‡ Mounted on FR5 board, 25mm x 25mm x 1.57mm.

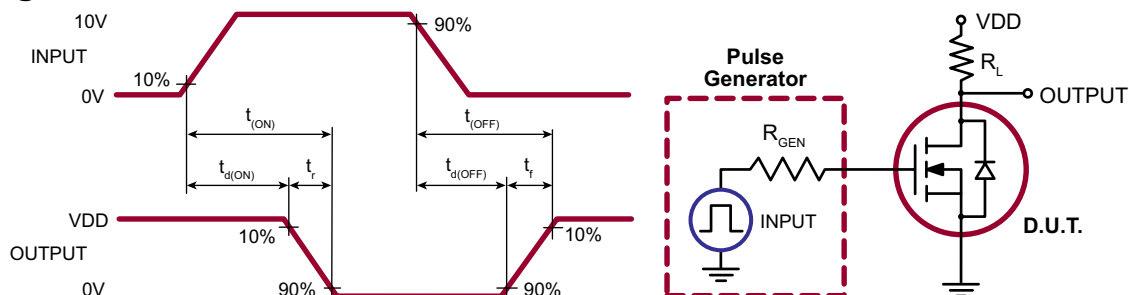
Electrical Characteristics ($T_j = 25^\circ\text{C}$ unless otherwise specified)

Sym	Parameter	Min	Typ	Max	Units	Conditions
BV_{DSS}	Drain-to-Source breakdown voltage	50	-	-	V	$V_{GS} = 0V$, $I_D = 10\text{mA}$
$V_{GS(th)}$	Gate threshold voltage	0.8	-	2.4	V	$V_{GS} = V_{DS}$, $I_D = 10\text{mA}$
$\Delta V_{GS(th)}$	Change in $V_{GS(th)}$ with temperature	-	-4.3	-5.5	mV/°C	$V_{GS} = V_{DS}$, $I_D = 10\text{mA}$
I_{GSS}	Gate body leakage current	-	1.0	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	3.0	14	-	A	$V_{GS} = 10V$, $V_{DS} = 5.0V$
$R_{DS(ON)}$	Static Drain-to-Source ON-state resistance	TO-92	-	0.45	Ω	$V_{GS} = 4.5V$, $I_D = 1.5A$
		TO-243AA	-	0.45		$V_{GS} = 4.5V$, $I_D = 0.75A$
		TO-92	-	0.3		$V_{GS} = 10V$, $I_D = 3.0A$
		TO-243AA	-	0.3		$V_{GS} = 10V$, $I_D = 1.5A$
$\Delta R_{DS(ON)}$	Change in $R_{DS(ON)}$ with temperature	-	0.85	1.2	%/°C	$V_{GS} = 10V$, $I_D = 3.0A$
G_{FS}	Forward transconductance	1.0	1.5	-	mho	$V_{DS} = 25V$, $I_D = 2.0A$
C_{ISS}	Input capacitance	-	220	300	pF	$V_{GS} = 0V$, $V_{DS} = 25V$, $f = 1.0\text{MHz}$
C_{OSS}	Common Source output capacitance	-	70	120		
C_{RSS}	Reverse transfer capacitance	-	20	30		
$t_{d(ON)}$	Turn-on delay time	-	-	10	ns	$V_{DD} = 25V$, $I_D = 2.0A$, $R_{GEN} = 10\Omega$
t_r	Rise time	-	-	15		
$t_{d(OFF)}$	Turn-off delay time	-	-	25		
t_f	Fall time	-	-	25		
V_{SD}	Diode forward voltage drop	-	-	1.6	V	$V_{GS} = 0V$, $I_{SD} = 1.5A$
t_{rr}	Reverse recovery time	-	300	-	ns	$V_{GS} = 0V$, $I_{SD} = 1.0A$

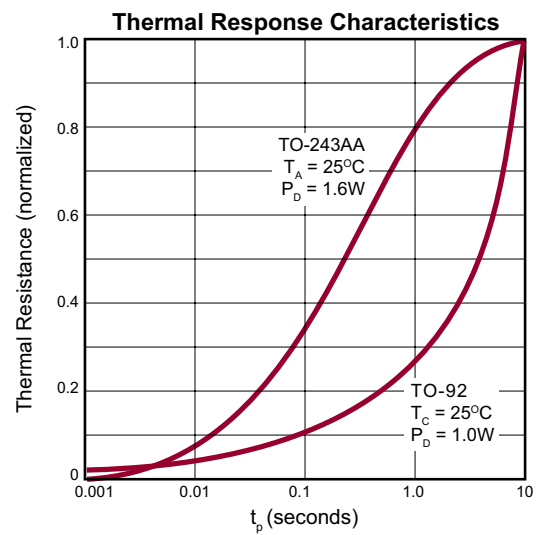
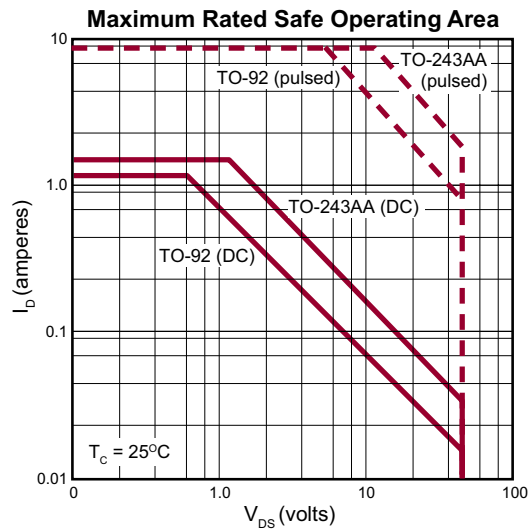
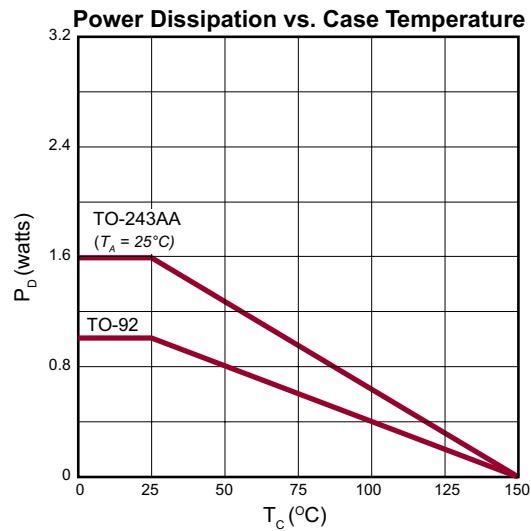
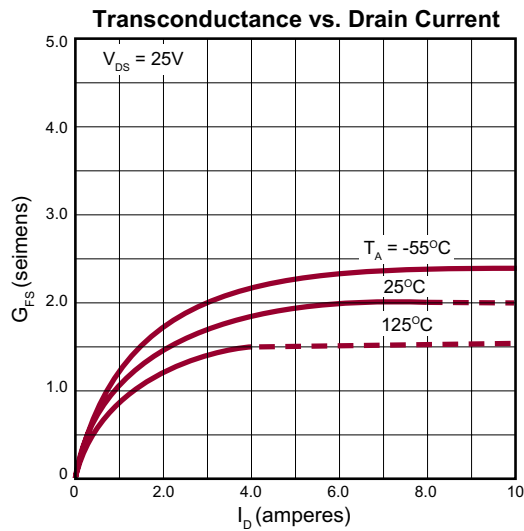
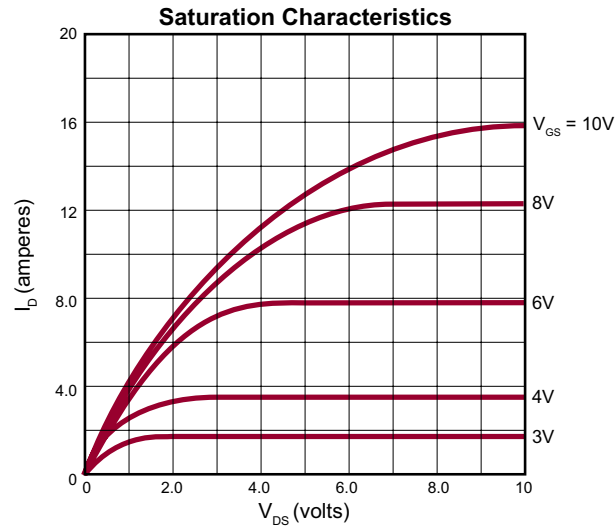
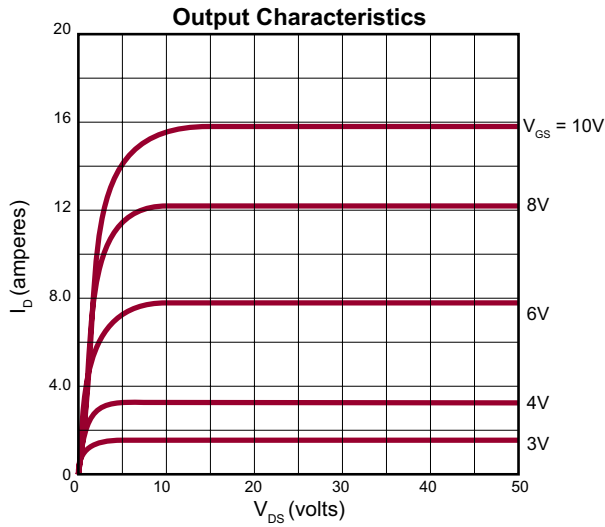
Notes:

1. All D.C. parameters 100% tested at 25°C unless otherwise stated. (Pulse test: 300 μs pulse, 2% duty cycle.)
2. All A.C. parameters sample tested.

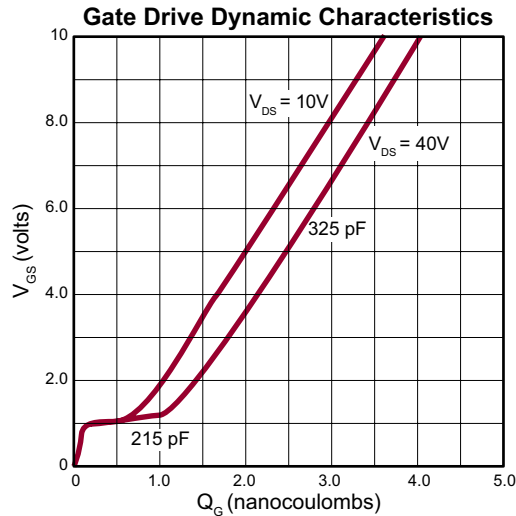
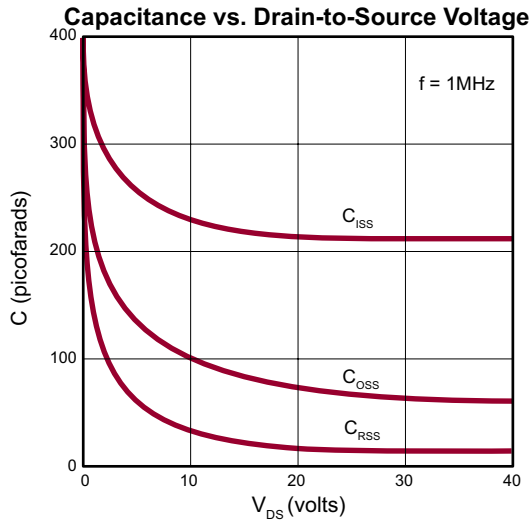
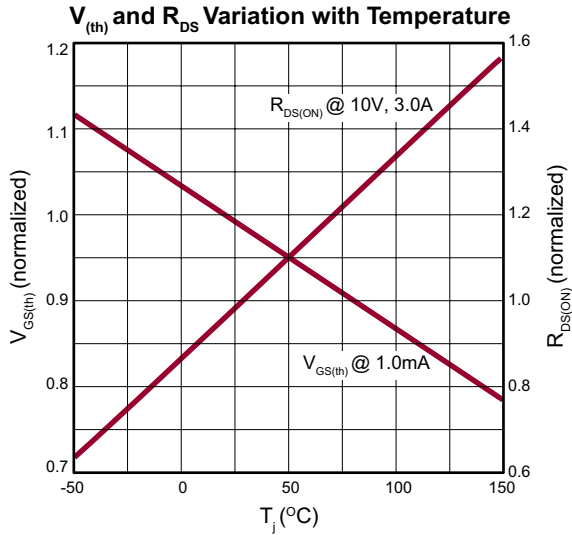
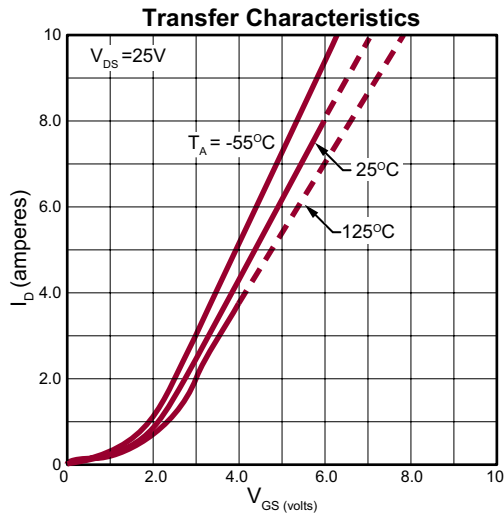
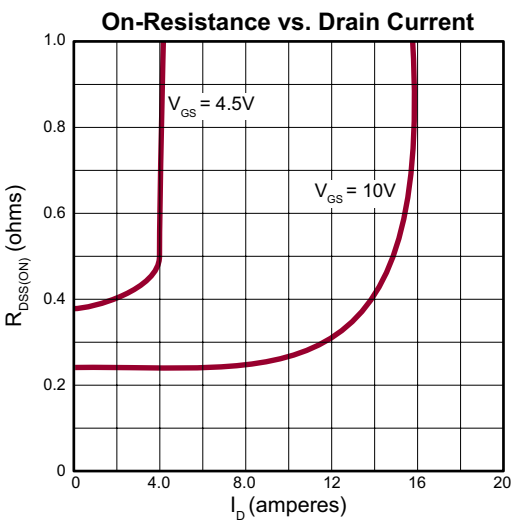
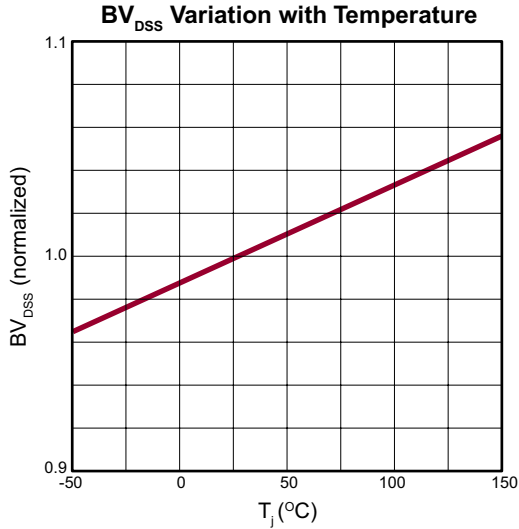
Switching Waveforms and Test Circuit



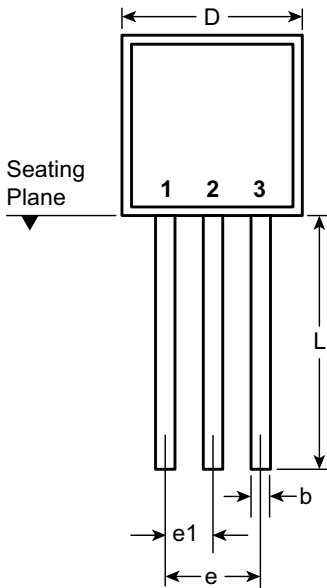
Typical Performance Curves



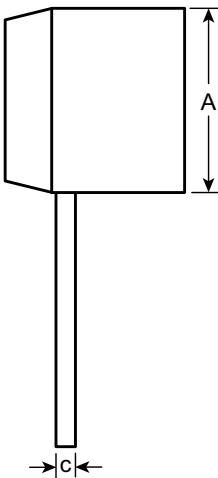
Typical Performance Curves (cont.)



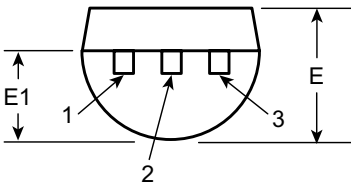
3-Lead TO-92 Package Outline (N3)



Front View



Side View

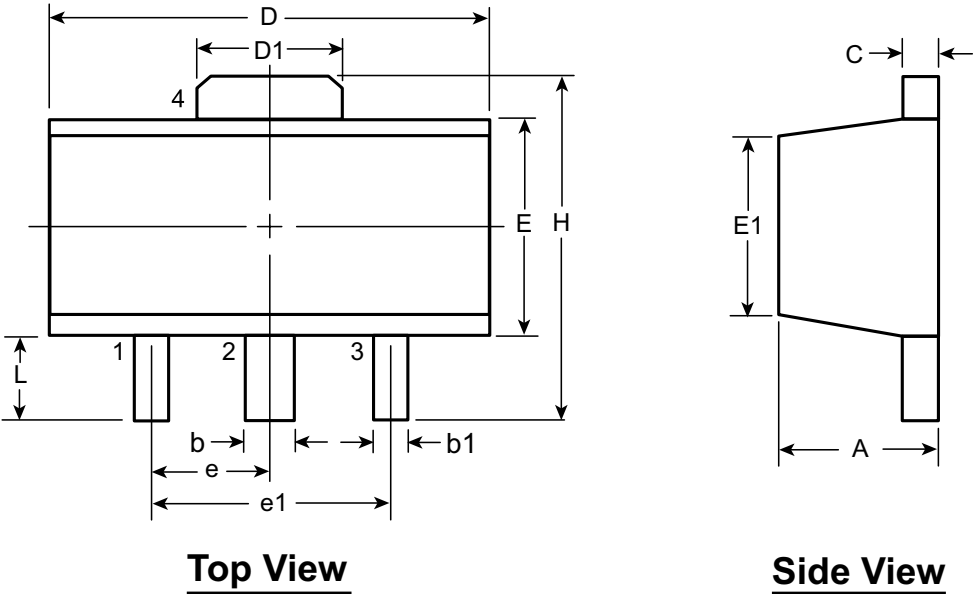


Bottom View

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.

3-Lead TO-243AA (SOT-89) Package Outline (N8)



Symbol		A	b	b1	C	D	D1	E	E1	e	e1	H	L
Dimensions (mm)	MIN	1.40	0.44	0.36	0.35	4.40	1.62	2.29	2.00†	1.50 BSC	3.00 BSC	3.94	0.73†
	NOM	-	-	-	-	-	-	-	-			-	-
	MAX	1.60	0.56	0.48	0.44	4.60	1.83	2.60	2.29			4.25	1.20

JEDEC Registration TO-243, Variation AA, Issue C, July 1986.
† This dimension differs from the JEDEC drawing
Drawings not to scale.
Supertex Doc. #: DSPD-3TO243AAN8, Version F111010.

(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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