

### Thermal Characteristics

Package	$I_D$ (continuous) <sup>†</sup>	$I_D$ (pulsed)	Power Dissipation @ $T_c = 25^\circ\text{C}$	$I_{DR}$ <sup>‡</sup>	$I_{DRM}$
TO-243AA (SOT-89)	480mA	1.90A	1.6W <sup>‡</sup>	480mA	1.90A

**Notes:**

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

<sup>‡</sup>  $T_A = 25^\circ\text{C}$ . Mounted on FR5 Board, 25mm x 25mm x 1.57mm. Significant  $P_D$  increase possible on ceramic substrate.

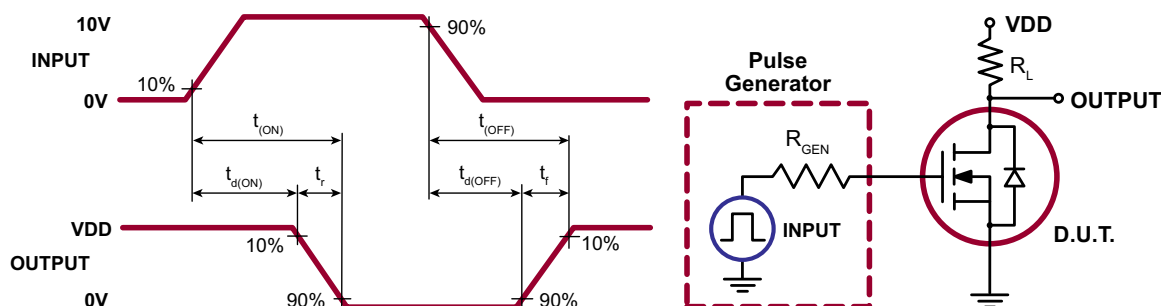
### Electrical Characteristics ( $T_A = 25^\circ\text{C}$ unless otherwise specified)

Sym	Parameter	Min	Typ	Max	Units	Conditions
$BV_{DSS}$	Drain-to-source breakdown voltage	250	-	-	V	$V_{GS} = 0V, I_D = 250\mu\text{A}$
$V_{GS(th)}$	Gate threshold voltage	0.8	-	2.5	V	$V_{GS} = V_{DS}, I_D = 1.0\text{mA}$
$\Delta V_{GS(th)}$	Change in $V_{GS(th)}$ with temperature	-	-	-5.5	mV/ $^\circ\text{C}$	$V_{GS} = V_{DS}, I_D = 1.0\text{mA}$
$I_{GSS}$	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	0.8	-	-	A	$V_{GS} = 4.5V, V_{DS} = 25V$
		1.5	-	-		$V_{GS} = 10V, V_{DS} = 25V$
$R_{DS(ON)}$	Static drain-to-source on-state resistance	-	-	6.0	$\Omega$	$V_{GS} = 3.0V, I_D = 150\text{mA}$
		-	-	5.0		$V_{GS} = 4.5V, I_D = 250\text{mA}$
		-	-	3.5		$V_{GS} = 10V, I_D = 500\text{mA}$
$\Delta R_{DS(ON)}$	Change in $R_{DS(ON)}$ with temperature	-	-	1.7	%/ $^\circ\text{C}$	$V_{GS} = 10V, I_D = 500\text{mA}$
$G_{FS}$	Forward transconductance	500	-	-	mmho	$V_{DS} = 25V, I_D = 250\text{mA}$
$C_{ISS}$	Input capacitance	-	105	200	pF	$V_{GS} = 0V, V_{DS} = 25V, f = 1.0\text{MHz}$
$C_{OSS}$	Common source output capacitance	-	25	100		
$C_{RSS}$	Reverse transfer capacitance	-	7.0	40		
$t_{d(ON)}$	Turn-on delay time	-	5.0	15	ns	$V_{DD} = 25V, I_D = 500\text{mA}, R_{GEN} = 25\Omega$
$t_r$	Rise time	-	10	25		
$t_{d(OFF)}$	Turn-off delay time	-	25	35		
$t_f$	Fall time	-	5.0	15		
$V_{SD}$	Diode forward voltage drop	-	-	1.5	V	$V_{GS} = 0V, I_{SD} = 500\text{mA}$
$t_{rr}$	Reverse recovery time	-	300	-	ns	$V_{GS} = 0V, I_{SD} = 500\text{mA}$

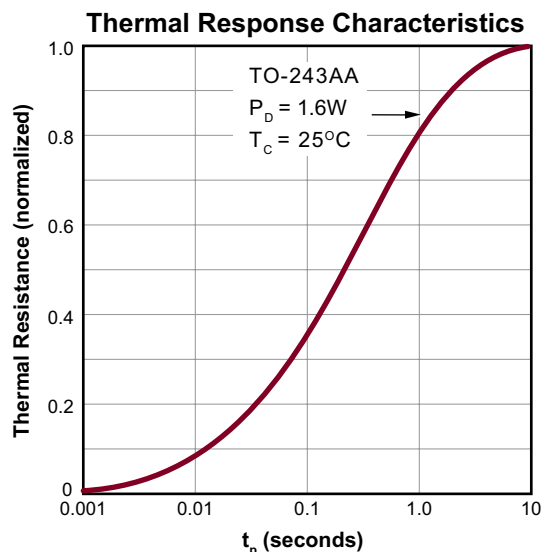
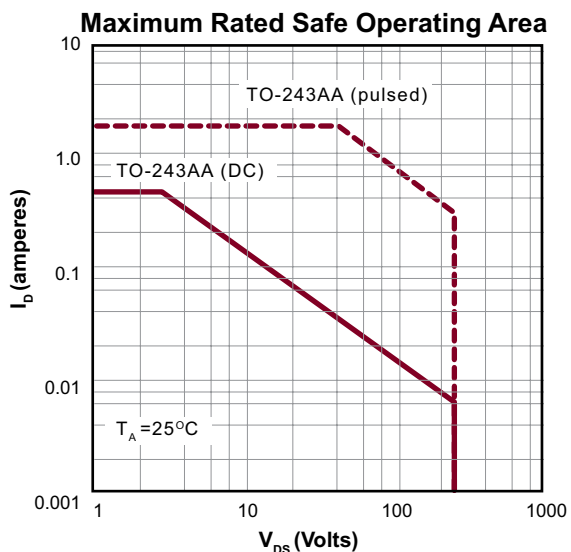
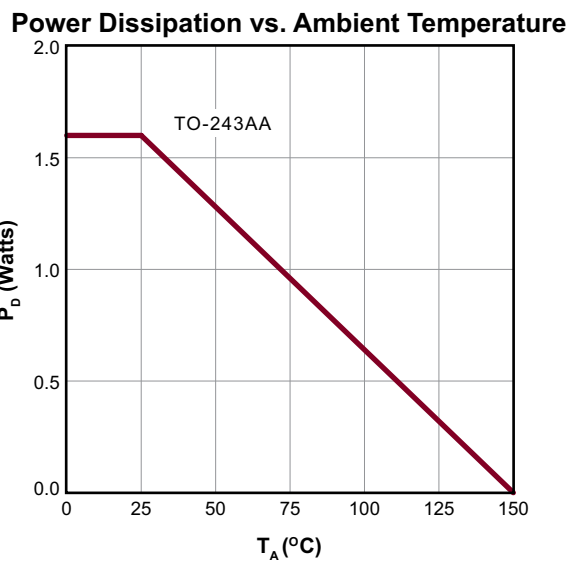
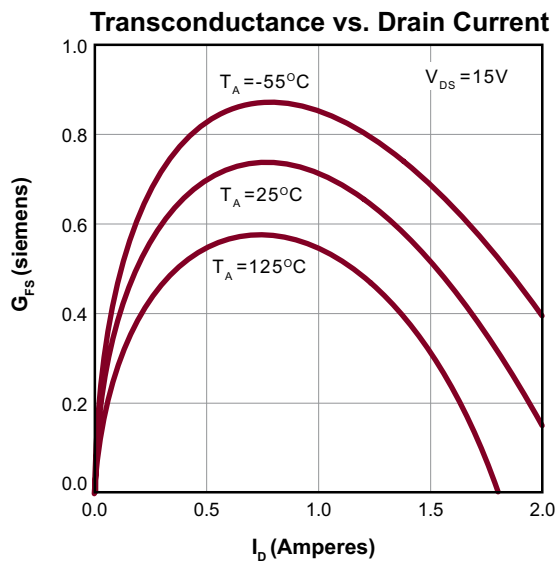
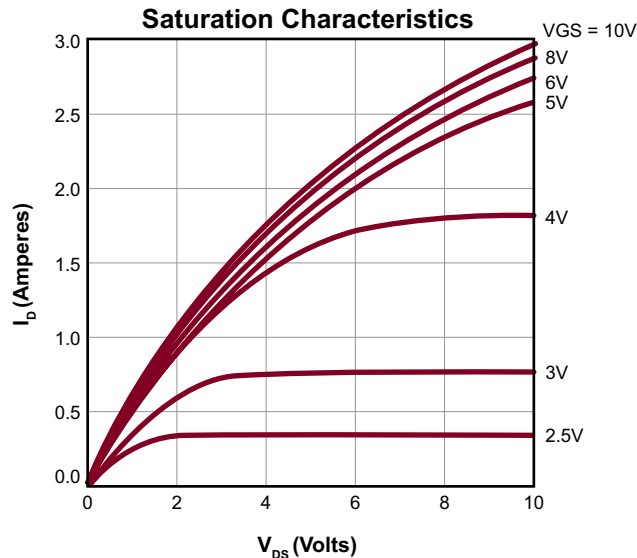
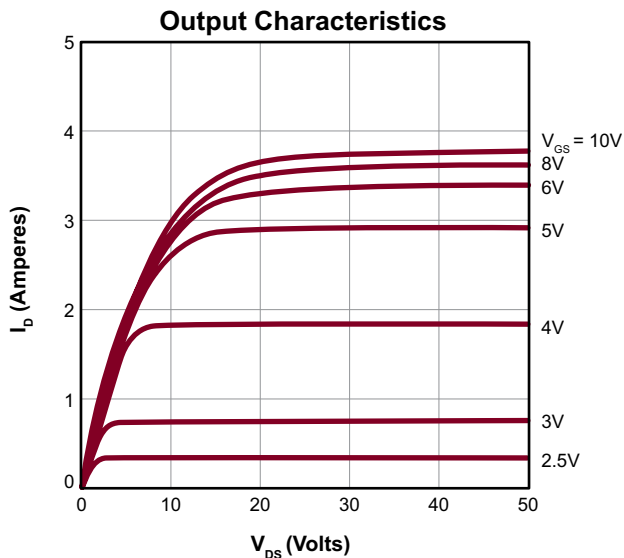
**Notes:**

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

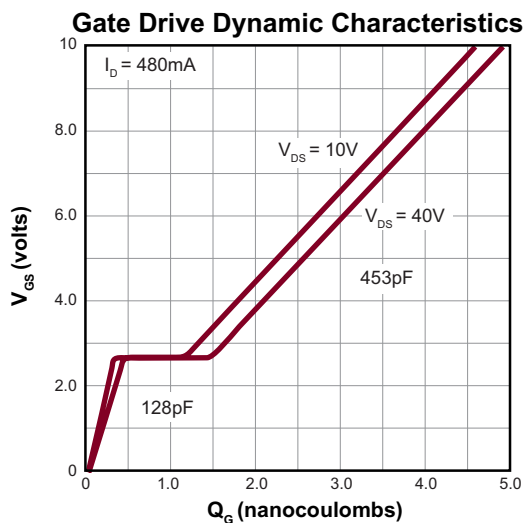
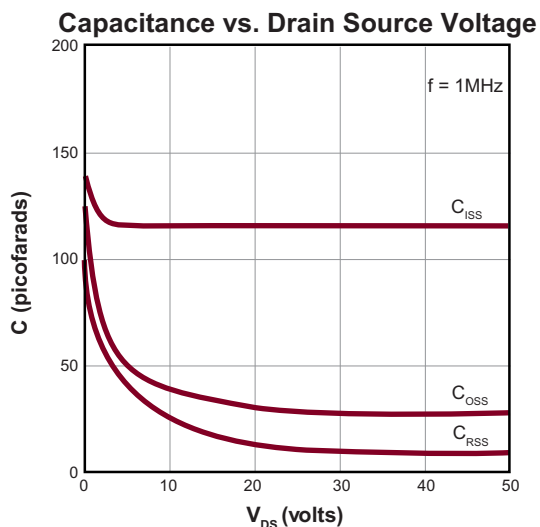
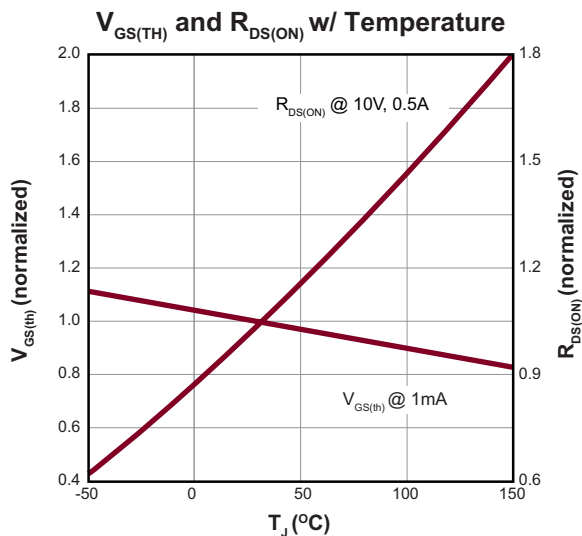
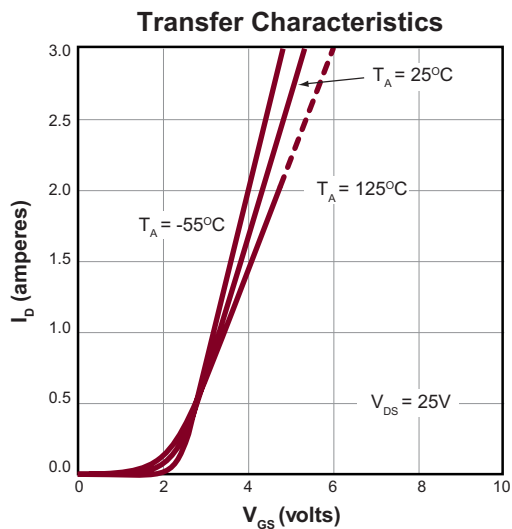
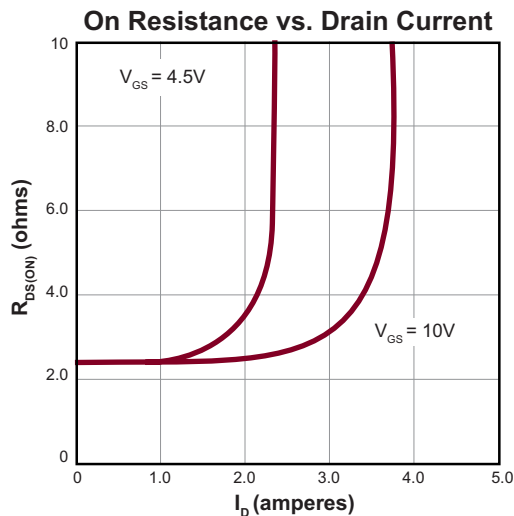
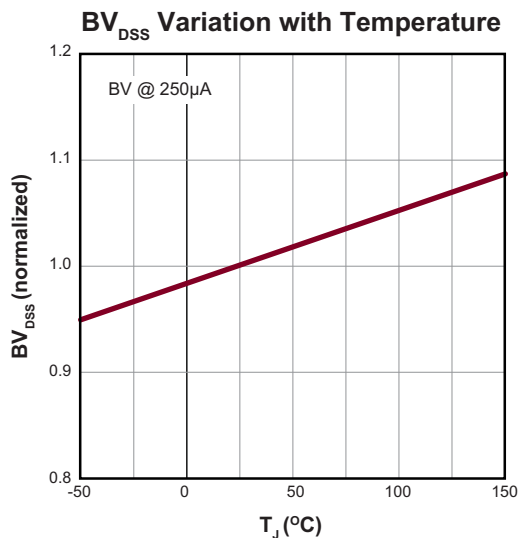
### Switching Waveforms and Test Circuit



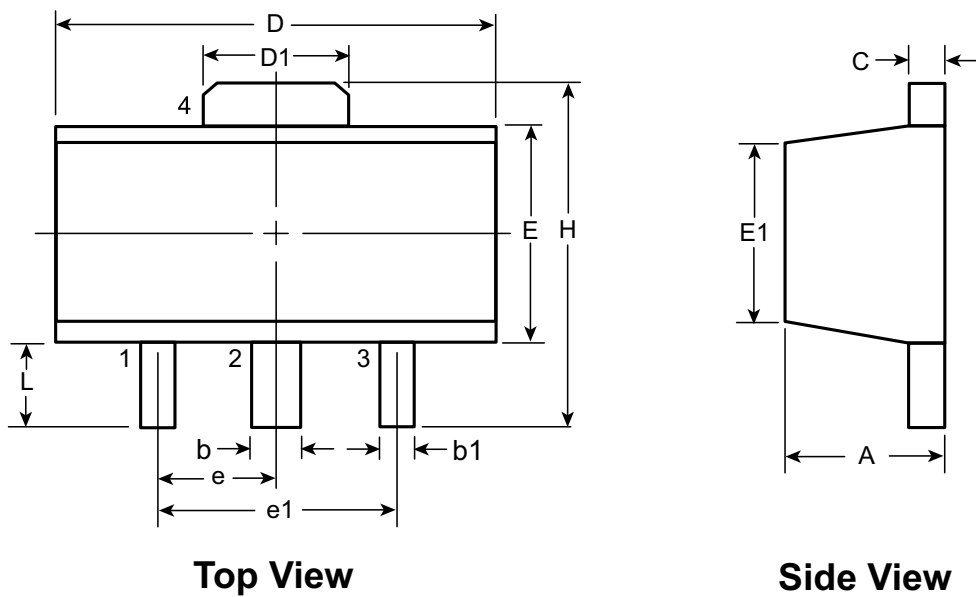
# Typical Performance Curves



Typical Performance Curves (cont.)



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



**Top View**

**Side View**

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 <sup>†</sup>	1.50 BSC	3.00 BSC	3.94	0.73 <sup>†</sup>
	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.

<sup>†</sup> 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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