Thermal Characteristics

Package	I_D (continuous)†	I_D (pulsed)	Power Dissipation @T_C = 25°C	I_{DR} †	I_{DRM}
TO-243AA (SOT-89)	400mA	560mA	1.6W‡	400mA	560mA

Notes:

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

‡ T_A *= 25°C. Mounted on FR5 Board, 25mm x 25mm x 1.57mm.*

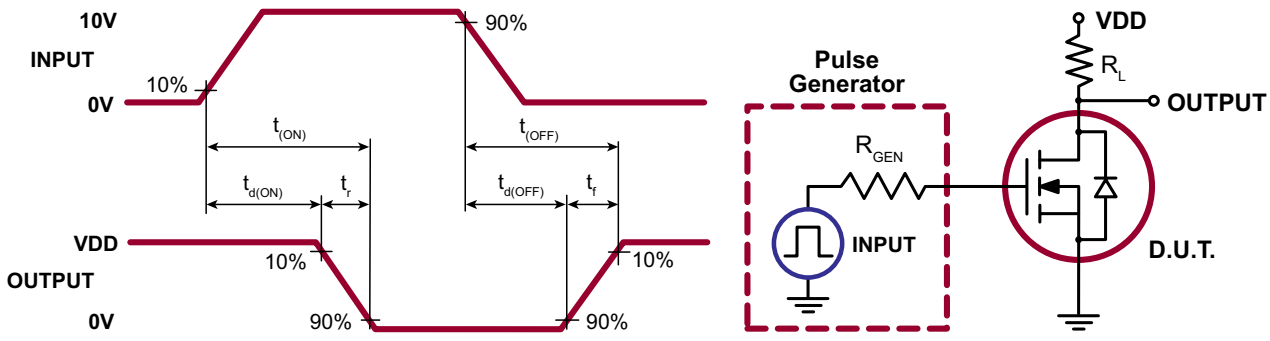
Electrical Characteristics *(T_A = 25°C unless otherwise specified)*

Sym	Parameter	Min	Typ	Max	Units	Conditions
BV_{DSS}	Drain-to-source breakdown voltage	18	-	-	V	V_{GS} = 0V, I_D = 1.0mA
$V_{GS(th)}$	Gate threshold voltage	0.3	-	1.0	V	V_{GS} = V_{DS}, I_D = 1.0mA
$\Delta V_{GS(th)}$	Change in $V_{GS(th)}$ with temperature	-	-	-4.0	mV/°C	V_{GS} = V_{DS}, I_D = 1.0mA
I_{GSS}	Gate body leakage	-	-	100	nA	V_{GS} = ±15V, V_{DS} = 0V
I_{DSS}	Zero gate voltage drain current	-	-	10	µA	V_{GS} = 0V, V_{DS} = Max Rating
		-	-	1.0	mA	V_{DS} = 0.8Max Rating, V_{GS} = 0V, T_A = 125°C
$I_{D(ON)}$	On-state drain current	250	600	-	A	V_{GS} = V_{DS} = 3.0V
$R_{DS(ON)}$	Static drain-to-source on-state resistance	-	-	25	Ω	V_{GS} = 1.2V, I_D = 3.0mA
		-	-	3.5		V_{GS} = 2.0V, I_D = 50mA
		-	-	2.5		V_{GS} = 3.0V, I_D = 200mA
$\Delta R_{DS(ON)}$	Change in $R_{DS(ON)}$ with temperature	-	-	0.75	%/°C	V_{GS} = 3.0V, I_D = 200mA
G_{FS}	Forward transductance	150	300	-	mmho	V_{DS} = 3.0V, I_D = 200mA
C_{ISS}	Input capacitance	-	-	110	pF	V_{GS} = 0V, V_{DS} = 15V, f = 1.0MHz
C_{OSS}	Common source output capacitance	-	-	60		
C_{RSS}	Reverse transfer capacitance	-	-	35		
$t_{d(ON)}$	Turn-on delay time	-	-	5.0	ns	V_{DD} = 15V, I_D = 250mA, R_{GEN} = 25Ω
t_r	Rise time	-	-	15		
$t_{d(OFF)}$	Turn-off delay time	-	-	15		
t_f	Fall time	-	-	8.0		
V_{SD}	Diode forward voltage drop	-	1.1	1.8	V	V_{GS} = 0V, I_{SD} = 200mA
t_{rr}	Reverse recovery time	-	100	-	ns	V_{GS} = 0V, I_{SD} = 200mA

Notes:

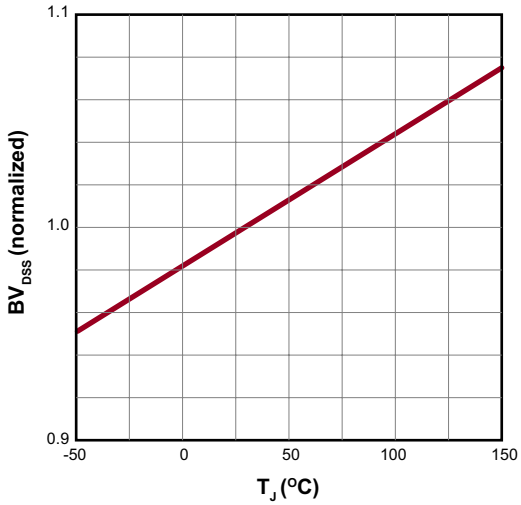
1. *All D.C. parameters 100% tested at 25°C unless otherwise stated. (Pulse test: 300µs pulse, 2% duty cycle.)*
2. *All A.C. parameters sample tested.*

Switching Waveforms and Test Circuit

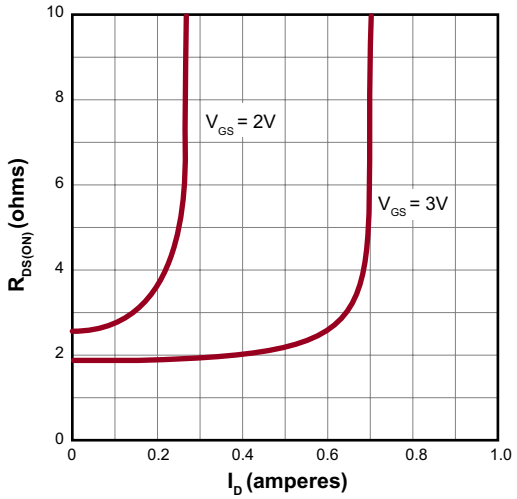


Typical Performance Curves

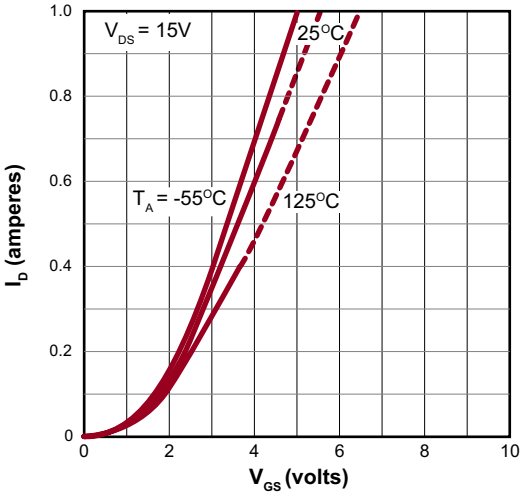
BV_{DSS} Variation with Temperature



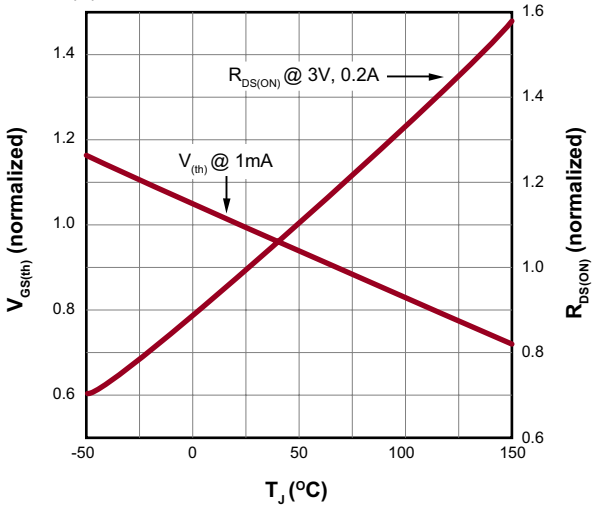
On-Resistance vs. I_D



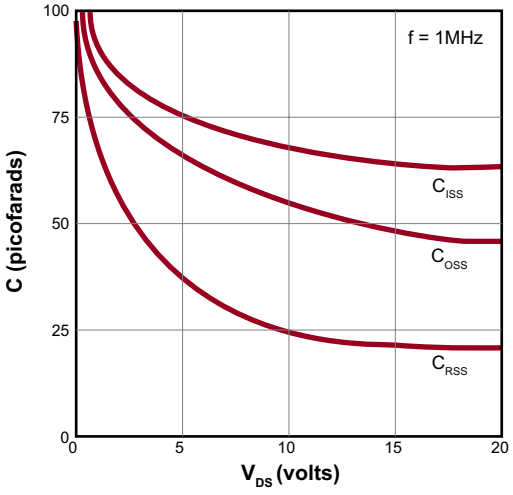
Transfer Characteristics



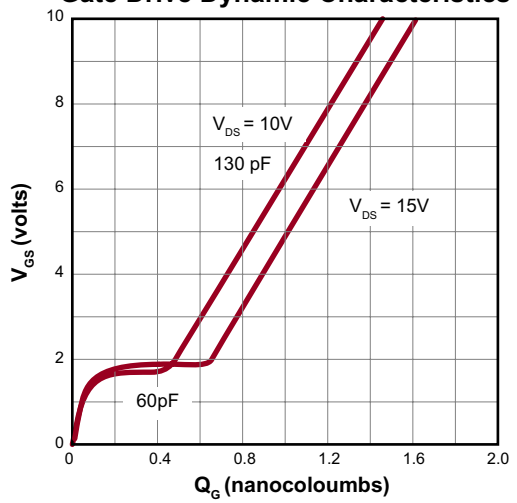
$V_{(th)}$ and R_{DS} Variation with Temperature



Capacitance vs. Drain-to-Source Voltage

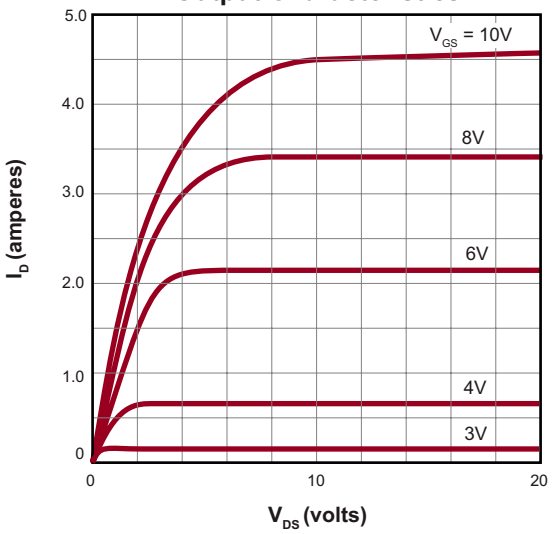


Gate Drive Dynamic Characteristics

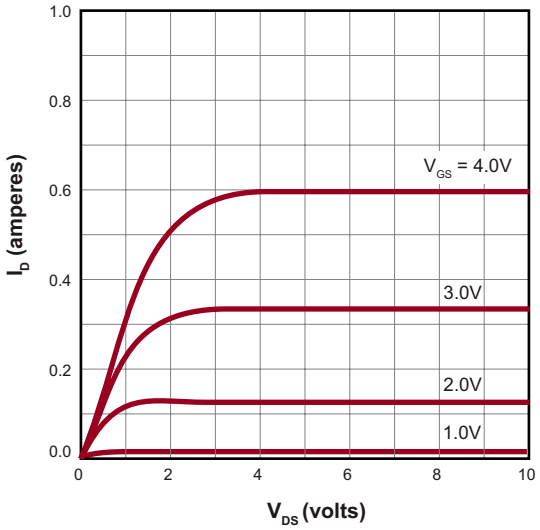


Typical Performance Curves *(cont.)*

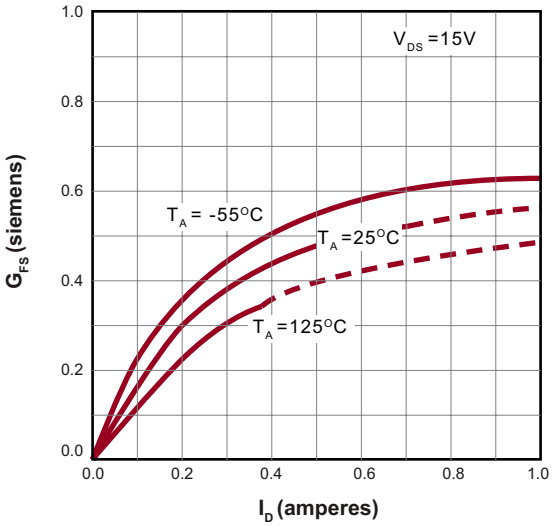
Output Characteristics



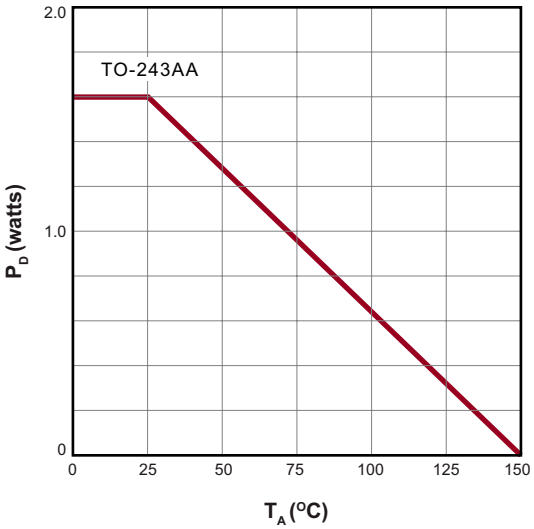
Saturation Characteristics



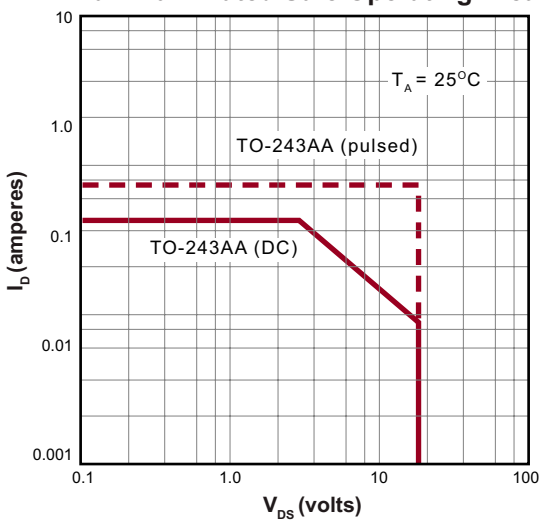
Transconductance vs. Drain Current



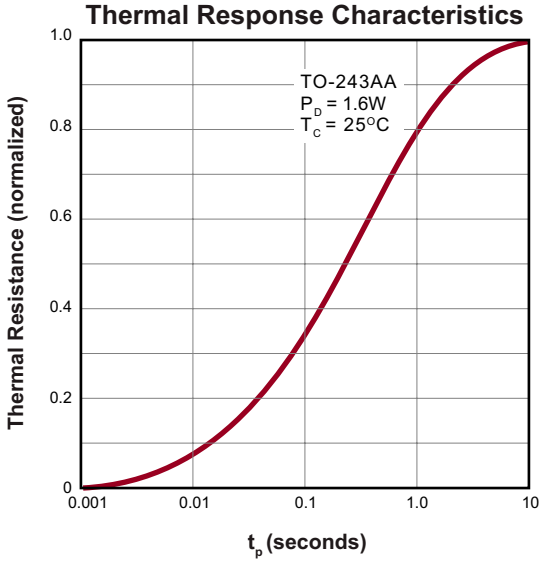
Power Dissipation vs. Ambient Temperature



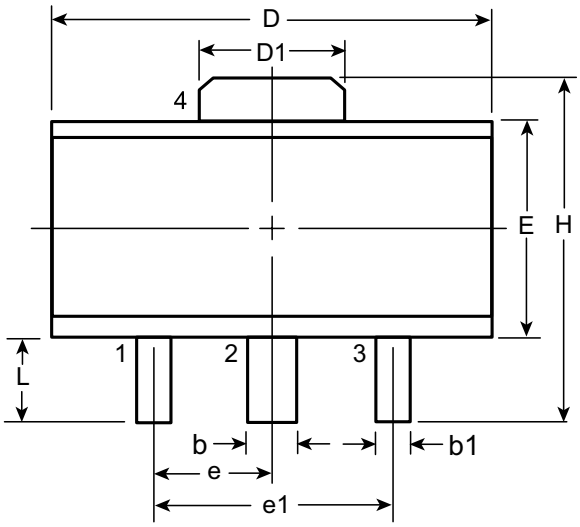
Maximum Rated Safe Operating Area



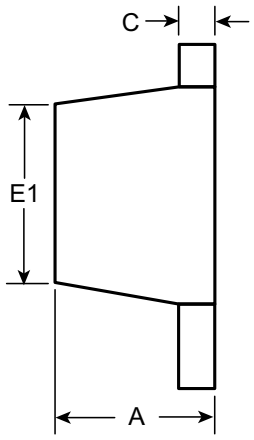
Thermal Response Characteristics



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†	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.)

Supertex inc.
1235 Bordeaux Drive, Sunnyvale, CA 94089
Tel: 408-222-8888
www.supertex.com