

Thermal Characteristics

Package	I_D (continuous)*	I_D (pulsed)	Power Dissipation @ $T_A = 25^\circ\text{C}$	θ_{jc} $^\circ\text{C/W}$	θ_{ja} $^\circ\text{C/W}$	I_{DR}^*	I_{DRM}
TO-92	-86mA	-0.6A	0.74W	125	170	-86mA	-0.6A
TO-243AA	-125mA	-1.2A	1.6W [†]	15	78 [†]	-125mA	-1.2A

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

[†] Mounted on FR5 Board, 25mm x 25mm x 1.57mm. Significant P_D increase possible on ceramic substrate.

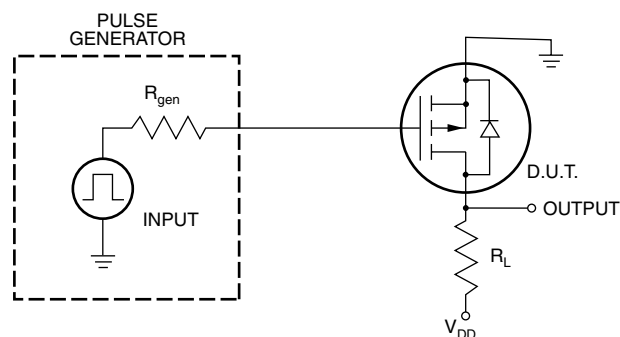
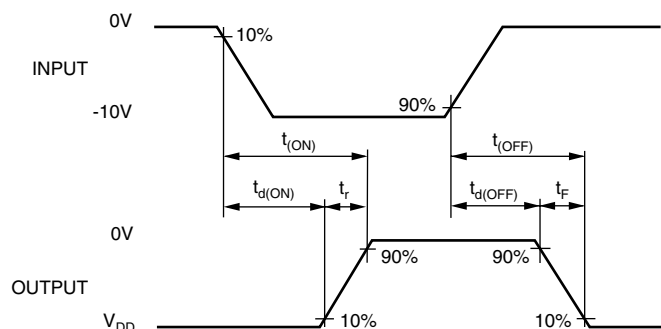
Electrical Characteristics (@ 25°C unless otherwise specified)

Symbol	Parameter	Min	Typ	Max	Unit	Conditions
BV_{DSS}	Drain-to-Source Breakdown Voltage	TP2540 -400 TP2535 -350			V	$V_{GS} = 0V, I_D = -2mA$
$V_{GS(th)}$	Gate Threshold Voltage	-1.0		-2.4	V	$V_{GS} = V_{DS}, I_D = -1mA$
$\Delta V_{GS(th)}$	Change in $V_{GS(th)}$ with Temperature			4.8	mV/ $^\circ\text{C}$	$V_{GS} = V_{DS}, I_D = -1mA$
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	$V_{GS} = 0V, V_{DS} = 0.8 \text{ Max Rating}$ $T_A = 125^\circ\text{C}$
$I_{D(ON)}$	ON-State Drain Current	-0.2 -0.4	-0.3 -1.1		A	$V_{GS} = -4.5V, V_{DS} = -25V$ $V_{GS} = -10V, V_{DS} = -25V$
$R_{DS(ON)}$	Static Drain-to-Source ON-State Resistance		20 19	30 25	Ω	$V_{GS} = -4.5V, I_D = -100mA$ $V_{GS} = -10V, I_D = -100mA$
$\Delta R_{DS(ON)}$	Change in $R_{DS(ON)}$ with Temperature			0.75	%/ $^\circ\text{C}$	$V_{GS} = -10V, I_D = -100mA$
G_{FS}	Forward Transconductance	100	175		mS	$V_{DS} = -25V, I_D = -100mA$
C_{ISS}	Input Capacitance		60	125	pF	$V_{GS} = 0V, V_{DS} = -25V$ $f = 1 \text{ MHz}$
C_{OSS}	Common Source Output Capacitance		20	70		
C_{RSS}	Reverse Transfer Capacitance		10	25		
$t_{d(ON)}$	Turn-ON Delay Time			10	ns	$V_{DD} = -25V$ $I_D = -0.4A$ $R_{GEN} = 25\Omega$
t_r	Rise Time			10		
$t_{d(OFF)}$	Turn-OFF Delay Time			20		
t_f	Fall Time			13		
V_{SD}	Diode Forward Voltage Drop			-1.8	V	$V_{GS} = 0V, I_{SD} = -100mA$
t_{rr}	Reverse Recovery Time		300		ns	$V_{GS} = 0V, I_{SD} = -100mA$

Notes:

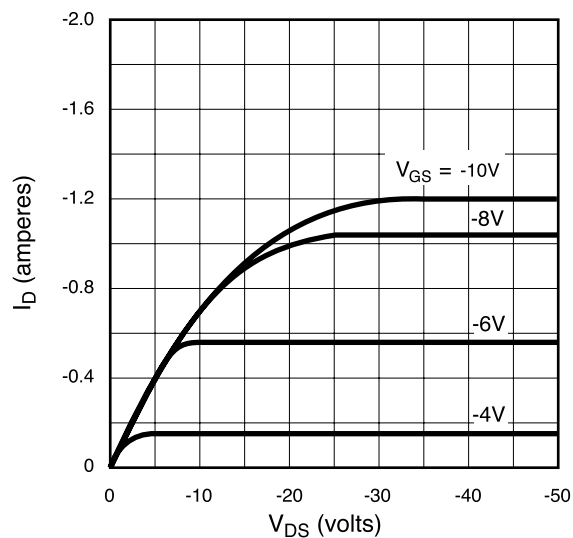
1. All D.C. parameters 100% tested at 25°C unless otherwise stated. (Pulse test: 300 μs pulse, 2% duty cycle.)
2. All A.C. parameters sample tested.

Switching Waveforms and Test Circuit

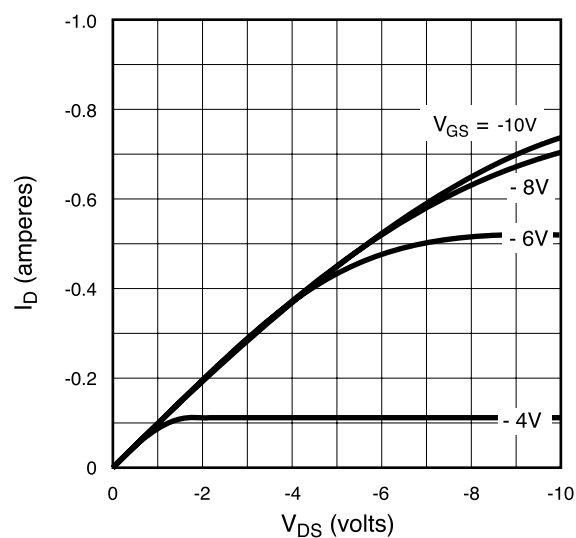


Typical Performance Curves

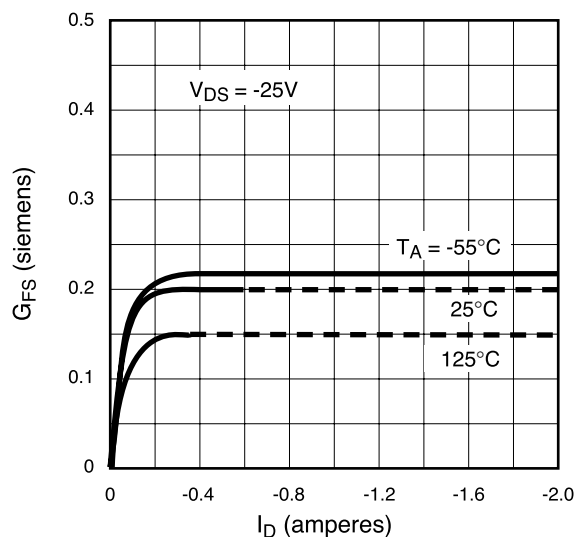
Output Characteristics



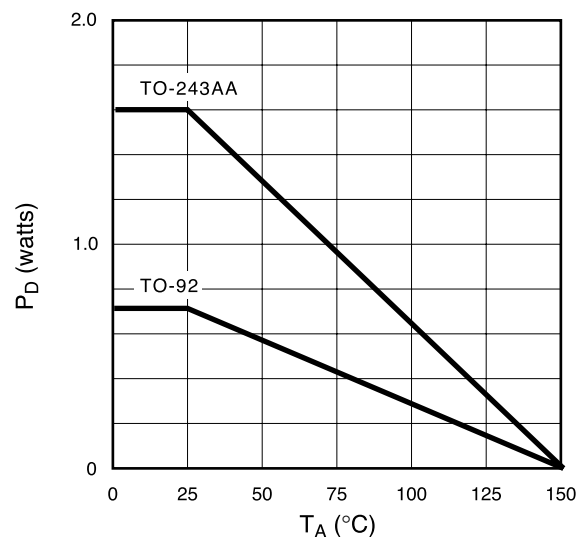
Saturation Characteristics



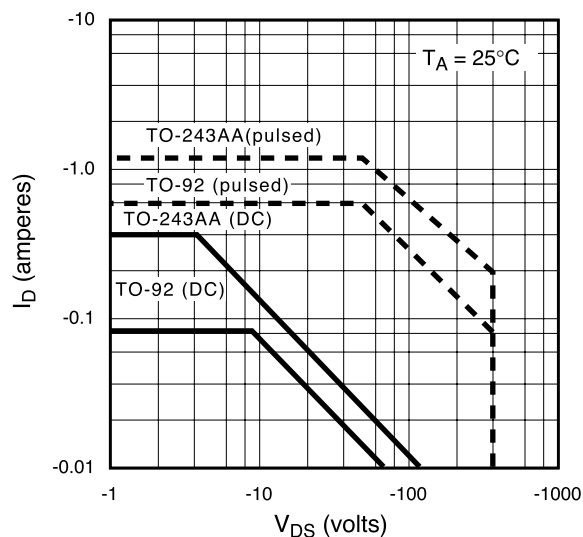
Transconductance vs. Drain Current



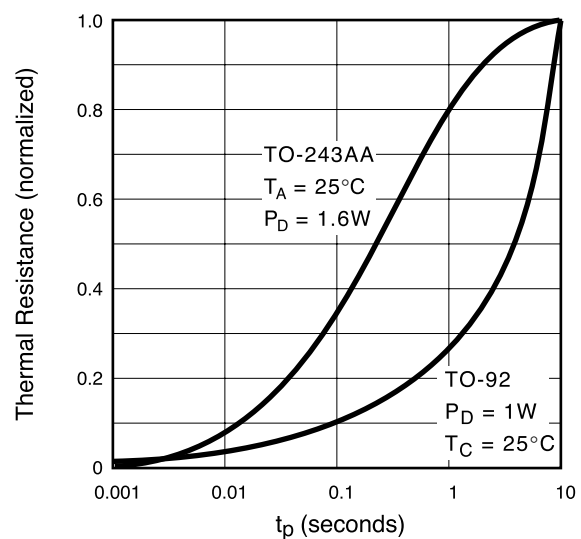
Power Dissipation vs. Ambient Temperature



Maximum Rated Safe Operating Area



Thermal Response Characteristics



Typical Performance Curves

