

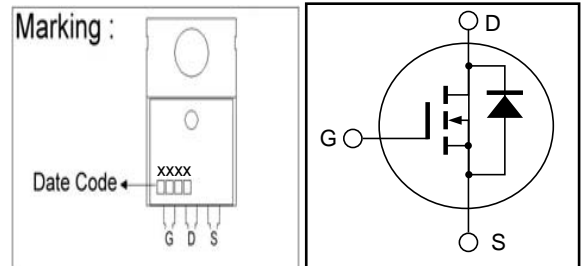
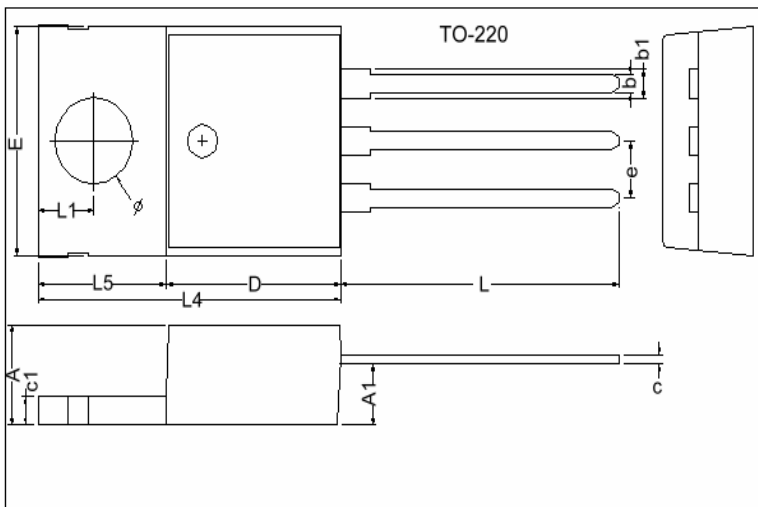
N-Channel MOSFET

BV _{DSS}	500V
R _{DS(ON)}	1.2Ω
I _D	5A

Features

- * Very Low leakage current
- * Low gate charge
- * Avalanche ratings
- * High speed switching
- * Lower R_{DS(ON)}

Package Dimensions



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	4.40	4.80	c1	1.25	1.45
b	0.76	1.00	b1	1.17	1.47
c	0.36	0.50	L	13.25	14.25
D	8.60	9.00	e	2.54 REF.	
E	9.80	10.4	L1	2.60	2.89
L4	14.7	15.3	∅	3.71	3.96
L5	6.20	6.60	A1	2.60	2.80

Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V _{DSS}	500	V
Gate to source voltage	V _{GSS}	±30	V
Drain current	I _D	5	A
Drain peak current	I _{D(pulse)} ^{Note1}	20	A
Body-drain diode reverse drain current	I _{DR}	5	A
Body-drain diode reverse drain peak current	I _{DR(pulse)} ^{Note1}	20	A
Avalanche current	I _{AP} ^{Note3}	5	A
Channel dissipation	P _{ch} ^{Note2}	40	W
Channel to case Thermal Impedance	θ _{ch-c}	4.17	°C/W
Channel temperature	T _{ch}	150	°C
Storage temperature	T _{stg}	-55 to +150	°C

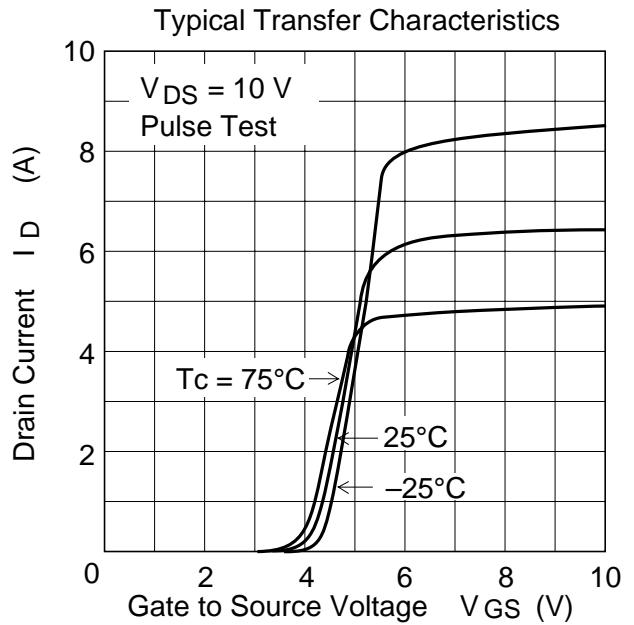
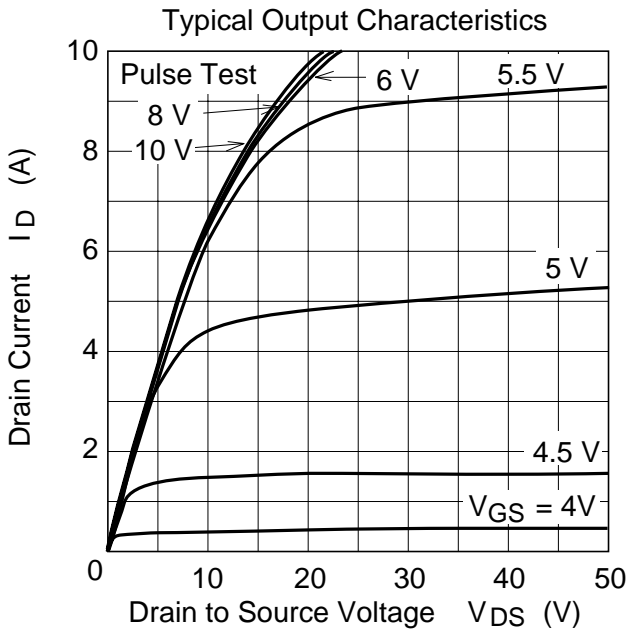
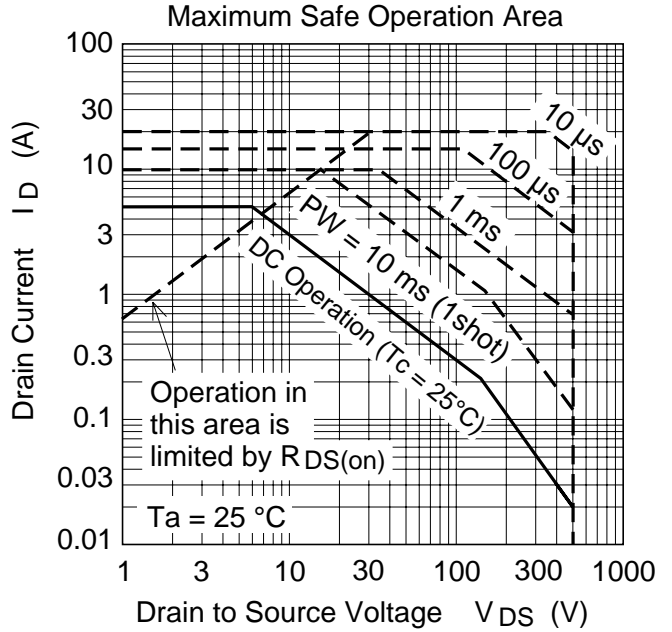
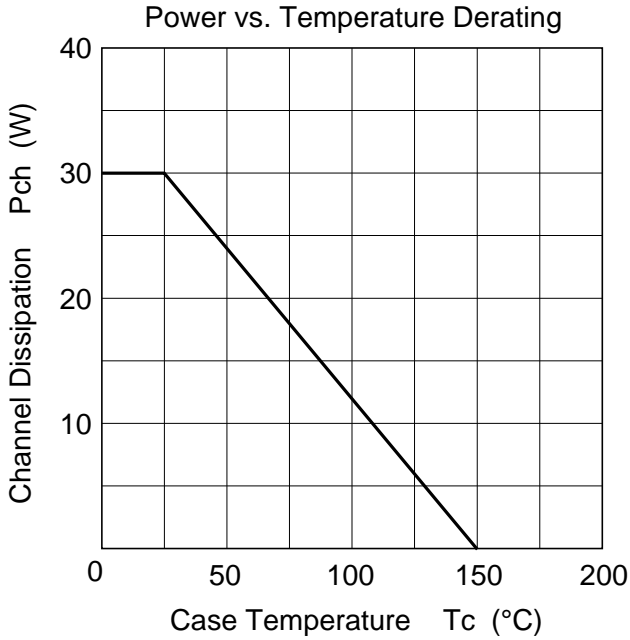
- Note: 1. PW ≤ 10μs, duty cycle ≤ 1 %
 2. Value at T_c = 25°C
 3. T_{ch} ≤ 150°C

Electrical Characteristics (Ta = 25°C)

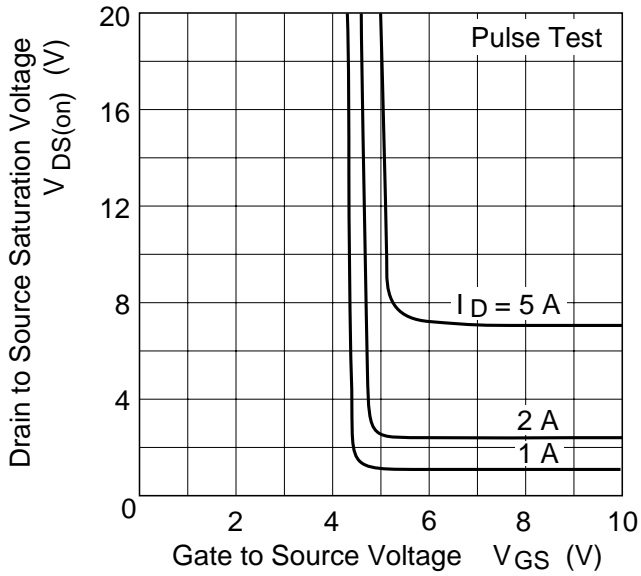
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	500	—	—	V	$I_D = 10\text{mA}, V_{GS} = 0$
Gate to source leak current	I_{GSS}	—	—	± 0.1	μA	$V_{GS} = \pm 30\text{V}, V_{DS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	1	μA	$V_{DS} = 500\text{V}, V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	3.0	—	4.0	V	$I_D = 1\text{mA}, V_{DS} = 10\text{V}$
Static drain to source on state resistance	$R_{DS(on)}$	—	1.2	1.5	Ω	$I_D = 2.5\text{A}, V_{GS} = 10\text{V}^{\text{Note4}}$
Forward transfer admittance	$ y_{fs} $	3.0	4.5	—	S	$I_D = 2.5\text{A}, V_{DS} = 10\text{V}^{\text{Note4}}$
Input capacitance	C_{iss}	—	580	—	pF	$V_{DS} = 25\text{V}$
Output capacitance	C_{oss}	—	70	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	C_{rss}	—	13	—	pF	$f = 1\text{MHz}$
Turn-on delay time	$t_{d(on)}$	—	20	—	ns	$I_D = 2.5\text{A}$
Rise time	t_r	—	15	—	ns	$V_{GS} = 10\text{V}$
Turn-off delay time	$t_{d(off)}$	—	65	—	ns	$R_L = 100\Omega$
Fall time	t_f	—	15	—	ns	$R_g = 10\Omega$
Total gate charge	Q_g	—	15	—	nC	$V_{DD} = 400\text{V}$
Gate to source charge	Q_{gs}	—	3	—	nC	$V_{GS} = 10\text{V}$
Gate to drain charge	Q_{gd}	—	8	—	nC	$I_D = 5\text{A}$
Body-drain diode forward voltage	V_{DF}	—	0.85	1.3	V	$I_F = 5\text{A}, V_{GS} = 0$
Body-drain diode reverse recovery time	t_{rr}	—	400	—	ns	$I_F = 5\text{A}, V_{GS} = 0$ $diF/dt = 100\text{A}/\mu\text{s}$
Body-drain diode reverse recovery charge	Q_{rr}	—	1.5	—	μC	

Note: 4. Pulse test

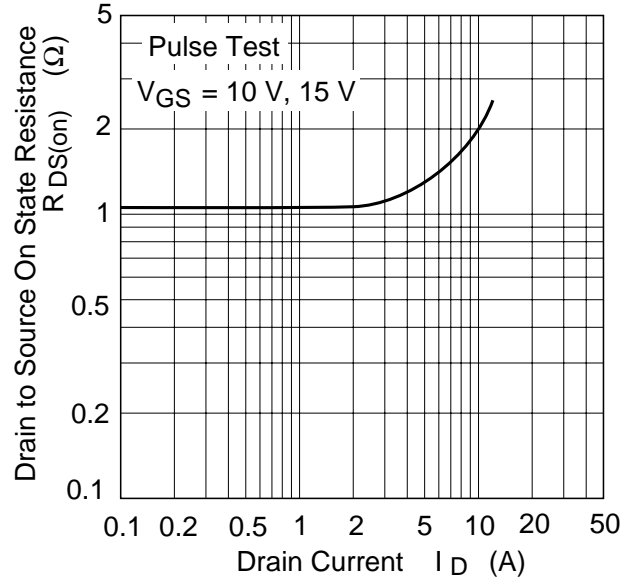
Main Characteristics



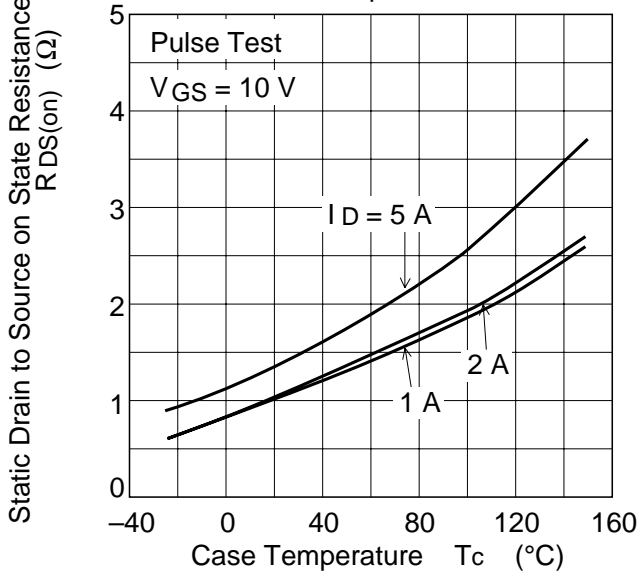
Drain to Source Saturation Voltage vs. Gate to Source Voltage



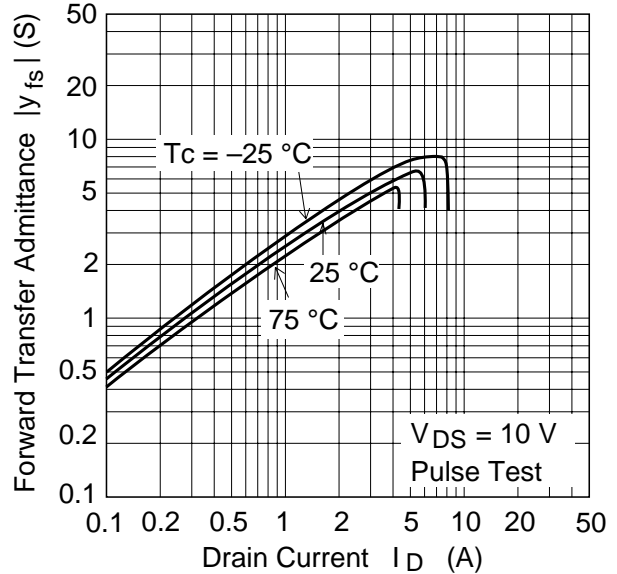
Static Drain to Source on State Resistance vs. Drain Current



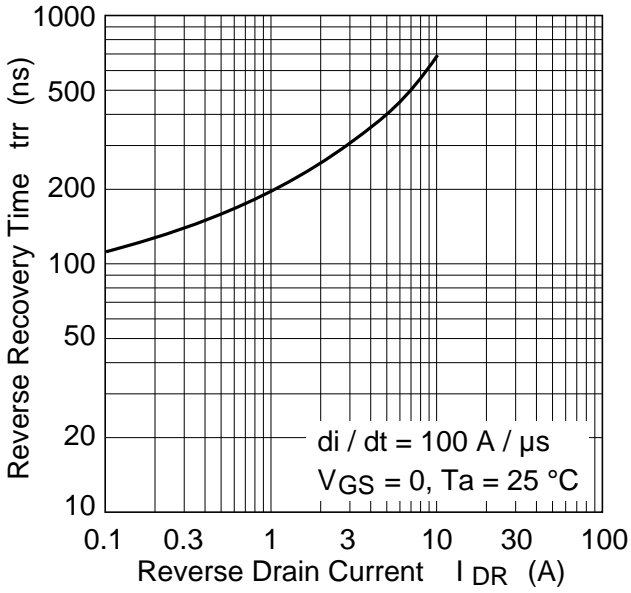
Static Drain to Source on State Resistance vs. Temperature



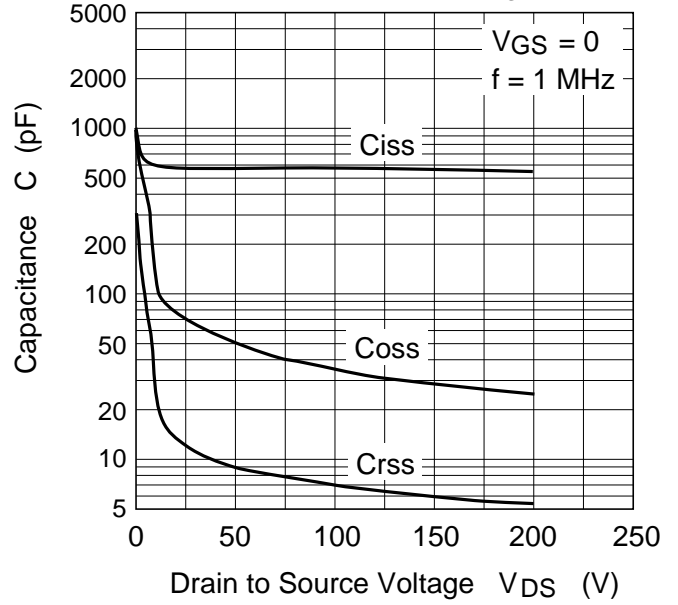
Forward Transfer Admittance vs. Drain Current



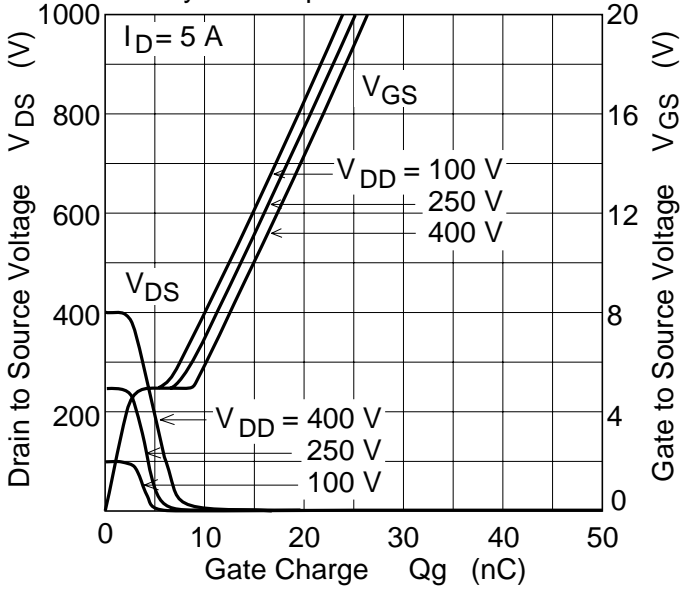
Body-Drain Diode Reverse Recovery Time



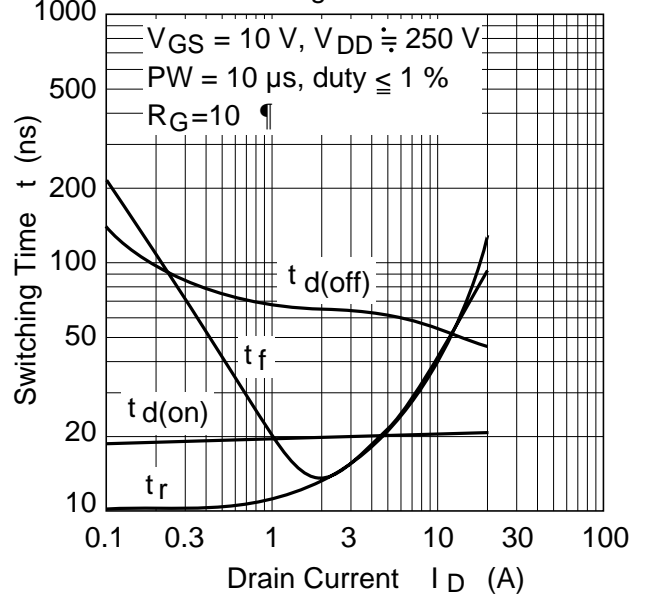
Typical Capacitance vs. Drain to Source Voltage



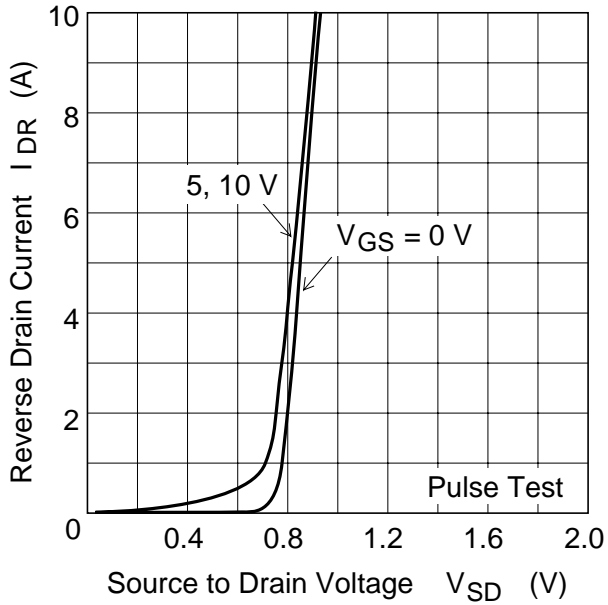
Dynamic Input Characteristics



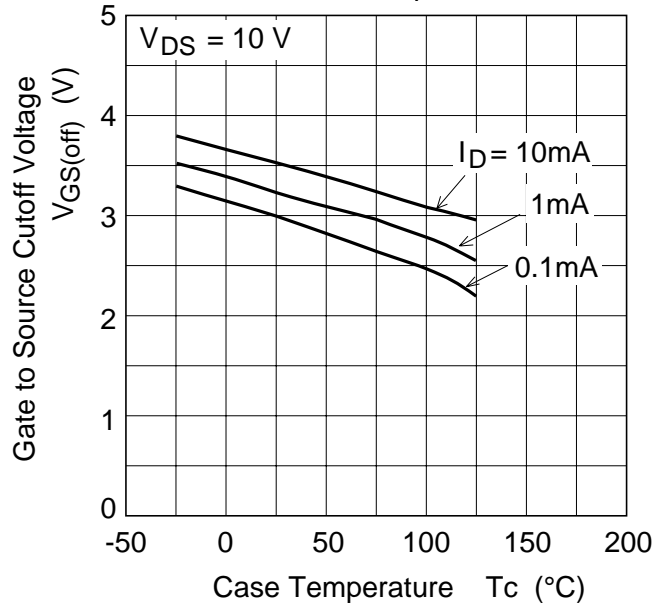
Switching Characteristics



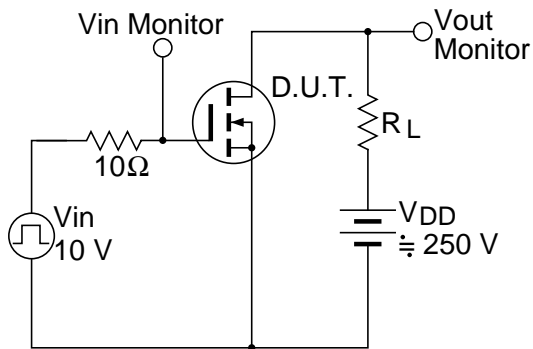
Reverse Drain Current vs. Source to Drain Voltage



Gate to Source Cutoff Voltage vs. Case Temperature



Switching Time Test Circuit



Waveform

