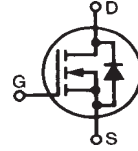


Trench Gate Power MOSFET

IXTA76N25T IXTH76N25T
IXTI76N25T IXTP76N25T
IXTQ76N25T

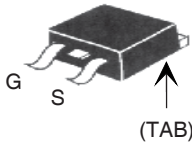
N-Channel Enhancement Mode



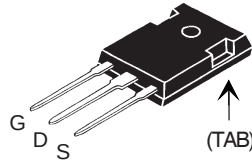
$$\begin{aligned} V_{DSS} &= 250V \\ I_{D25} &= 76A \\ R_{DS(on)} &\leq 39m\Omega \end{aligned}$$

Typical avalanche BV = 300V

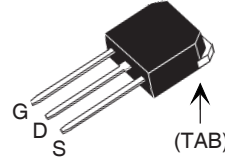
TO-263 (IXTA)



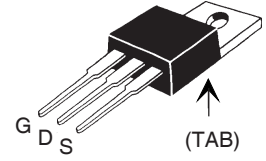
TO-247 (IXTH)



TO-262 (IXTI)

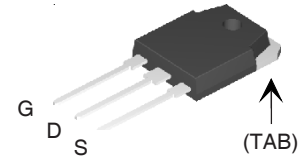


TO-220 (IXTP)



Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	$T_J = 25^\circ\text{C}$ to 150°C	250	V
V_{DGR}	$T_J = 25^\circ\text{C}$ to 150°C , $R_{GS} = 1M\Omega$	250	V
V_{GSM}	Transient	± 30	V
I_{D25}	$T_C = 25^\circ\text{C}^*$	76	A
I_{DM}	$T_C = 25^\circ\text{C}$, pulse width limited by T_{JM}	170	A
I_{AS}	$T_C = 25^\circ\text{C}$	8	A
E_{AS}	$T_C = 25^\circ\text{C}$	1.5	J
P_D	$T_C = 25^\circ\text{C}$	460	W
T_J		-55 ... +150	$^\circ\text{C}$
T_{JM}		150	$^\circ\text{C}$
T_{stg}		-55 ... +150	$^\circ\text{C}$
T_L	1.6mm (0.062in.) from case for 10s Plastic body for 10seconds	300 260	$^\circ\text{C}$ $^\circ\text{C}$
M_d	Mounting Torque TO-220,TO-3P,TO247	1.13 / 10	Nm/lb.in.
F_c	Mounting Force TO-262,TO-263	10..65 / 2.2..14.6	N/lb.
Weight	TO-262,TO-263	2.5	g
	TO-220	3.0	g
	TO-3P	5.5	g
	TO-247	6.0	g

TO-3P (IXTQ)



G = Gate D = Drain
S = Source TAB = Drain

Features

- International standard packages
- Avalanche rated
- Low package inductance
 - easy to drive and to protect

Advantages

- Easy to mount
- Space savings
- High power density

Applications

- DC-DC converters
- Battery chargers
- Switched-mode and resonant-mode power supplies
- DC choppers
- AC motor control
- Uninterruptible power supplies
- High speed power switching applications

Symbol	Test Conditions ($T_J = 25^\circ\text{C}$ unless otherwise specified)	Characteristic Values		
		Min.	Typ.	Max.
BV_{DSS}	$V_{GS} = 0V$, $I_D = 1mA$ $V_{GS} = 0V$, $I_D = 10A$	250	300	V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 1mA$	3		5 V
I_{GSS}	$V_{GS} = \pm 20V$, $V_{DS} = 0V$			± 100 nA
I_{DSS}	$V_{DS} = V_{DSS}$ $V_{GS} = 0V$ $T_J = 125^\circ\text{C}$			2 μA 200 μA
$R_{DS(on)}$	$V_{GS} = 10V$, $I_D = 0.5 \cdot I_{D25}$, Note 1			39 m Ω

Symbol	Test Conditions ($T_J = 25^\circ\text{C}$ unless otherwise specified)	Characteristic Values		
		Min.	Typ.	Max.
g_{fs}	$V_{DS} = 10\text{V}$, $I_D = 0.5 \cdot I_{D25}$, Note 1	43	72	S
C_{iss}	$V_{GS} = 0\text{V}$, $V_{DS} = 25\text{V}$, $f = 1\text{MHz}$		4500	pF
C_{oss}			480	pF
C_{rss}			46	pF
$t_{d(on)}$	Resistive Switching Times $V_{GS} = 15\text{V}$, $V_{DS} = 0.5 \cdot V_{DSS}$, $I_D = 0.5 \cdot I_{D25}$ $R_G = 3.3\Omega$ (External)		22	ns
t_r			25	ns
$t_{d(off)}$			56	ns
t_f			29	ns
$Q_{g(on)}$	$V_{GS} = 10\text{V}$, $V_{DS} = 0.5 \cdot V_{DSS}$, $I_D = 25\text{A}$		92	nC
Q_{gs}			28	nC
Q_{gd}			21	nC
R_{thJC}	TO-220 TO-3P, TO-247		0.50	0.27 $^\circ\text{C/W}$
R_{thCH}				$^\circ\text{C/W}$
			0.21	$^\circ\text{C/W}$

Source-Drain Diode

Symbol	Test Conditions ($T_J = 25^\circ\text{C}$ unless otherwise specified)	Characteristic Values		
		Min.	Typ.	Max.
I_S	$V_{GS} = 0\text{V}$			76 A
I_{SM}	Repetitive, pulse width limited by T_{JM}			200 A
V_{SD}	$I_F = I_S$, $V_{GS} = 0\text{V}$, Note 1			1.5 V
t_{rr}	$I_F = 38\text{A}$, $-di/dt = 250\text{A}/\mu\text{s}$ $V_R = 100\text{V}$, $V_{GS} = 0\text{V}$		148	ns
I_{RM}			21	A
Q_{RM}			1.6	μC

Notes: 1: Pulse test, $t \leq 300\mu\text{s}$; duty cycle, $d \leq 2\%$.

*: Current may be limited by external lead limit.

PRELIMINARY TECHNICAL INFORMATION

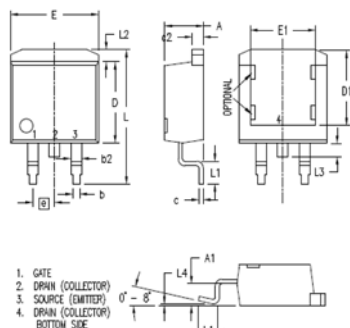
The product presented herein is under development. The Technical Specifications offered are derived from data gathered during objective characterizations of preliminary engineering lots; but also may yet contain some information supplied during a pre-production design evaluation. IXYS reserves the right to change limits, test conditions, and dimensions without notice.

IXYS reserves the right to change limits, test conditions, and dimensions.

IXYS MOSFETs and IGBTs are covered by one or more of the following U.S. patents:

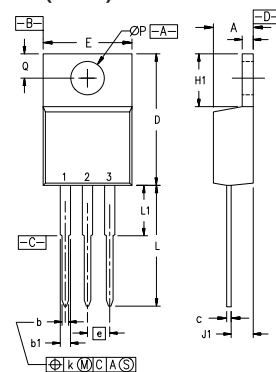
4,835,592	4,931,844	5,049,961	5,237,481	6,162,665	6,404,065 B1	6,683,344	6,727,585	7,005,734 B2	7,157,338 B2
4,850,072	5,017,508	5,063,307	5,381,025	6,259,123 B1	6,534,343	6,710,405 B2	6,759,692	7,063,975 B2	
4,881,106	5,034,796	5,187,117	5,486,715	6,306,728 B1	6,583,505	6,710,463	6,771,478 B2	7,071,537	

TO-263 (IXTA) Outline



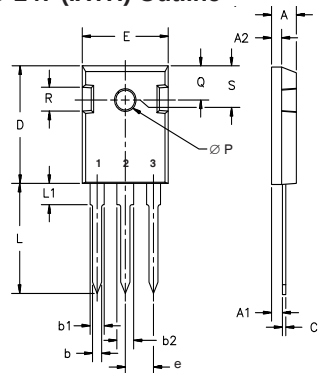
SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.160	.190	4.06	4.83
A1	.080	.110	2.03	2.79
b	.020	.039	0.51	0.99
b2	.045	.055	1.14	1.40
c	.016	.029	0.40	0.74
c2	.045	.055	1.14	1.40
D	.340	.380	8.64	9.65
D1	.315	.350	8.00	8.89
E	.380	.410	9.65	10.41
E1	.245	.320	6.22	8.13
e	.100 BSC		2.54 BSC	
L	.575	.625	14.61	15.88
L1	.090	.110	2.29	2.79
L2	.040	.055	1.02	1.40
L3	.050	.070	1.27	1.78
L4	0	.005	0	0.13

TO-220 (IXTP) Outline



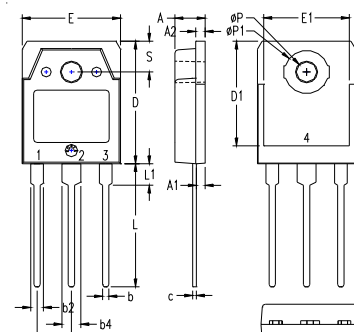
SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.170	.190	4.32	4.83
b	.025	.040	0.64	1.02
b1	.045	.065	1.15	1.65
c	.014	.022	0.35	0.56
D	.580	.630	14.73	16.00
E	.390	.420	9.91	10.66
e	.100 BSC		2.54 BSC	
F	.045	.055	1.14	1.40
H1	.230	.270	5.85	6.85
J1	.090	.110	2.29	2.79
k	0	.015	0	0.38
L	.500	.550	12.70	13.97
L1	.110	.230	2.79	5.84
ØP	.139	.161	3.53	4.08
Q	.100	.125	2.54	3.18

TO-247 (IXTH) Outline

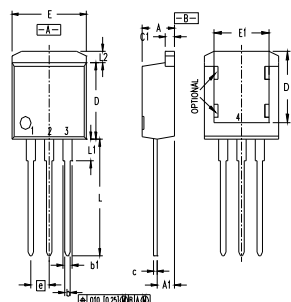


Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.7	5.3	.185	.209
A ₁	2.2	2.54	.087	.102
A ₂	2.2	2.6	.059	.098
b	1.0	1.4	.040	.055
b ₁	1.65	2.13	.065	.084
b ₂	2.87	3.12	.113	.123
C	.4	.8	.016	.031
D	20.80	21.46	.819	.845
E	15.75	16.26	.610	.640
e	5.20	5.72	0.205	0.225
L	19.81	20.32	.780	.800
L1		4.50		.177
ØP	3.55	3.65	.140	.144
Q	5.89	6.40	0.232	0.252
R	4.32	5.49	.170	.216
S	6.15	BSC	242	BSC

TO-3P (IXTQ) Outline



Leaded 262 (IXTI) Outline



NOTE: This drawing will meet all dimensions requirement of JEDEC outline TO-262 AA.

SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.160	.190	4.06	4.83
A1	.080	.110	2.03	2.79
b	.025	.039	0.51	0.99
b2	.025	.039	1.14	1.40
c	.018	.029	0.46	0.74
c2	.018	.029	1.14	1.40
D	.340	.380	8.64	9.65
D1	.315	.350	8.00	8.89
E	.380	.405	9.65	10.29
E1	.245	.320	6.22	8.13
e	.100 BSC		2.54 BSC	
L	.500	.580	14.61	15.88
L1	.080	.130	2.29	2.79
L2	.040	.055	1.02	1.40

SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.185	.193	4.70	4.90
A1	.051	.059	1.30	1.50
A2	.057	.065	1.45	1.65
b	.035	.045	0.90	1.15
b2	.075	.087	1.90	2.20
b4	.114	.126	2.90	3.20
c	.022	.031	0.55	0.80
D	.780	.799	19.80	20.30
D1	.665	.677	16.90	17.20
E	.610	.622	15.50	15.80
E1	.531	.539	13.50	13.70
e	.215 BSC		5.45 BSC	
L	.779	.795	19.80	20.20
L1	.134	.142	3.40	3.60
ØP	.126	.134	3.20	3.40
ØP1	.272	.280	6.90	7.10
S	.193	.201	4.90	5.10

**Fig. 1. Output Characteristics
@ 25°C**

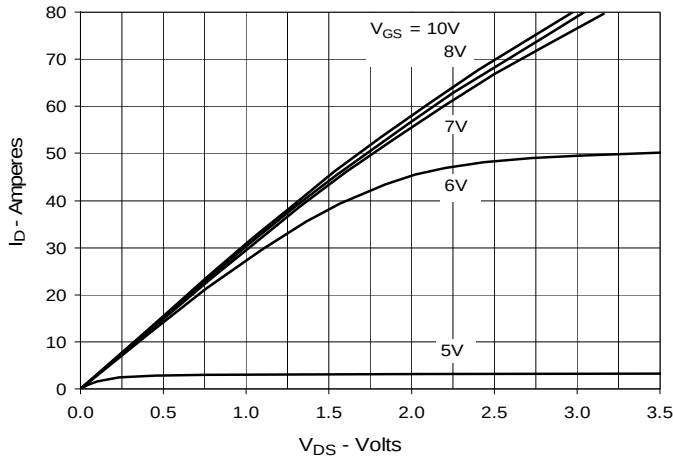


**Fig. 2. Extended Output Characteristics
@ 25°C**

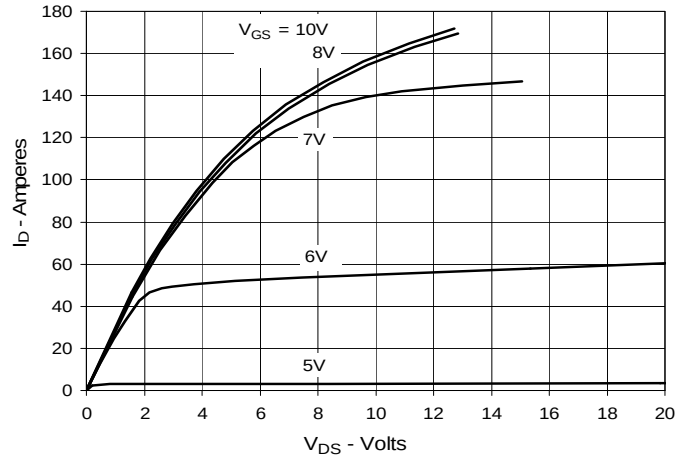


**Fig. 3. Output Characteristics
@ 125°C**

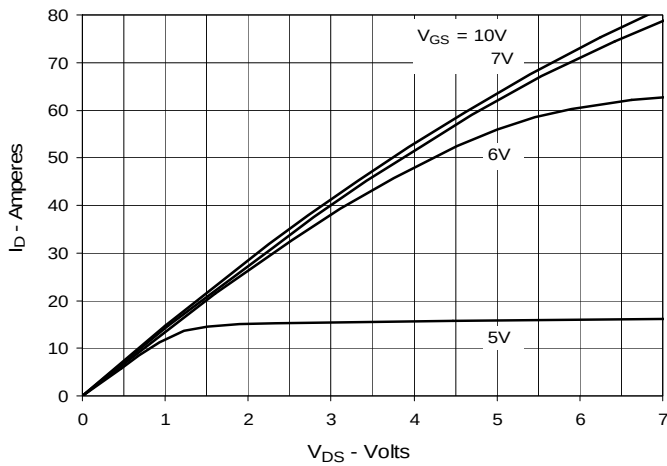


**Fig. 4. $R_{DS(on)}$ Normalized to $I_D = 38A$ Value
vs. Junction Temperature**

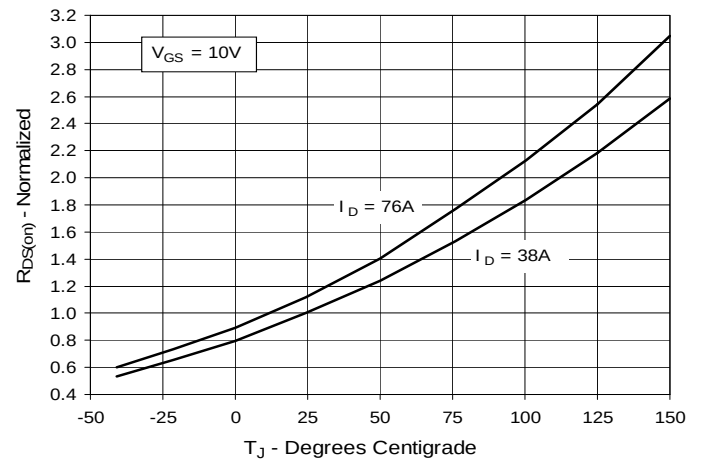


**Fig. 5. $R_{DS(on)}$ Normalized to $I_D = 38A$ Value
vs. Drain Current**

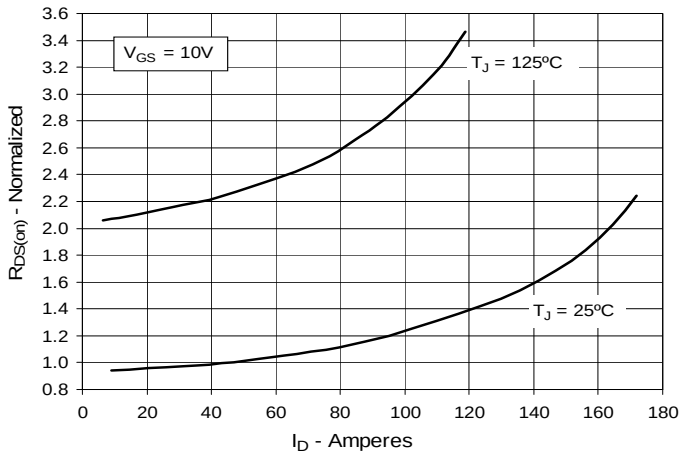


Fig. 6. Drain Current vs. Case Temperature

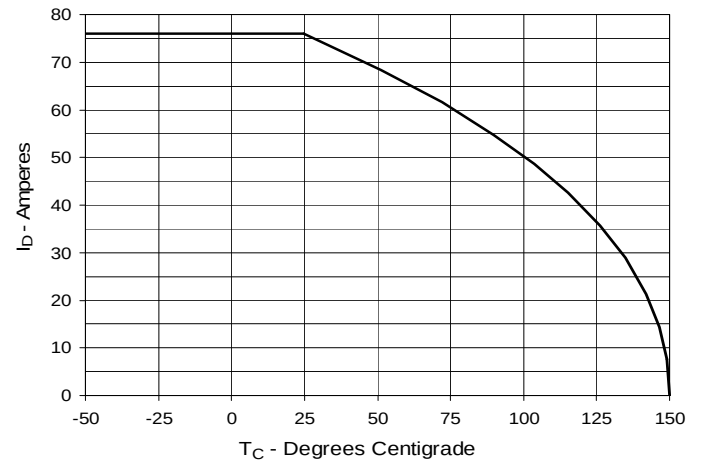


Fig. 7. Input Admittance

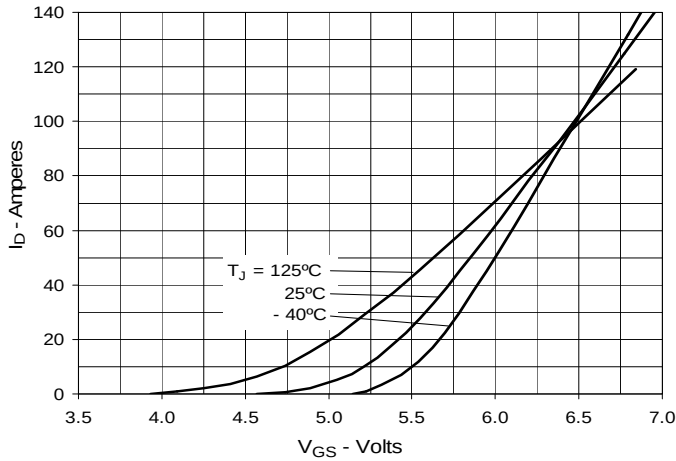


Fig. 8. Transconductance

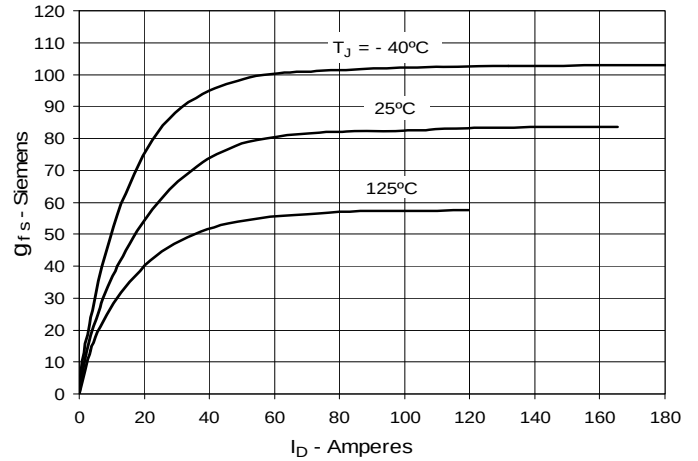


Fig. 9. Forward Voltage Drop of Intrinsic Diode

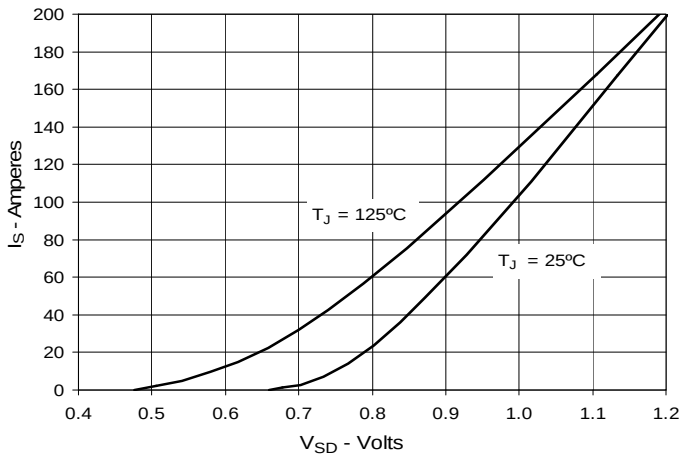


Fig. 10. Gate Charge

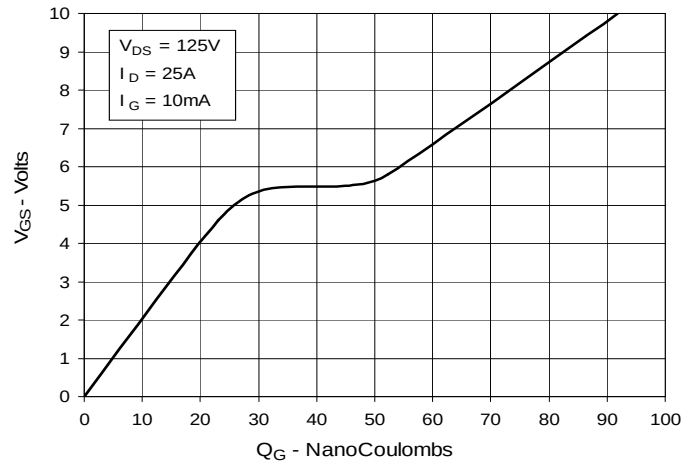


Fig. 11. Capacitance

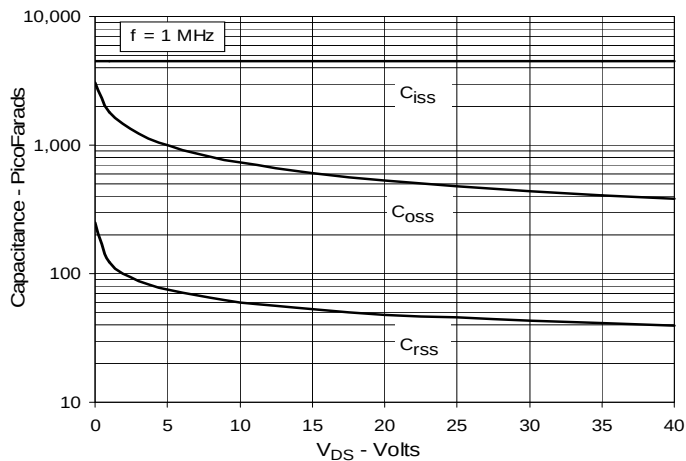


Fig. 12. Maximum Transient Thermal Impedance

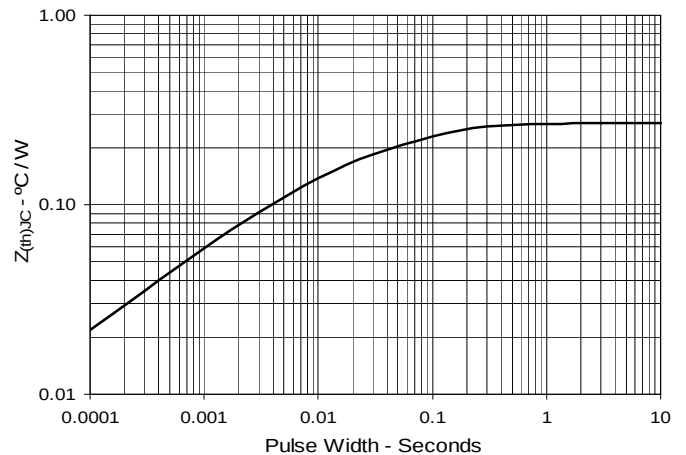


**Fig. 13. Resistive Turn-on
Rise Time vs. Junction Temperature**

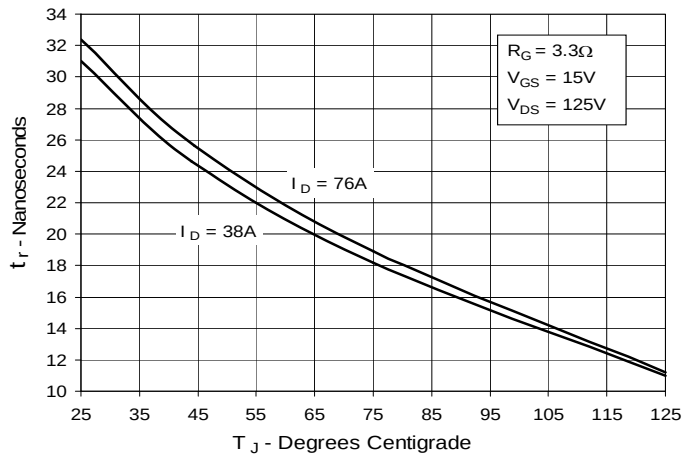


**Fig. 14. Resistive Turn-on
Rise Time vs. Drain Current**

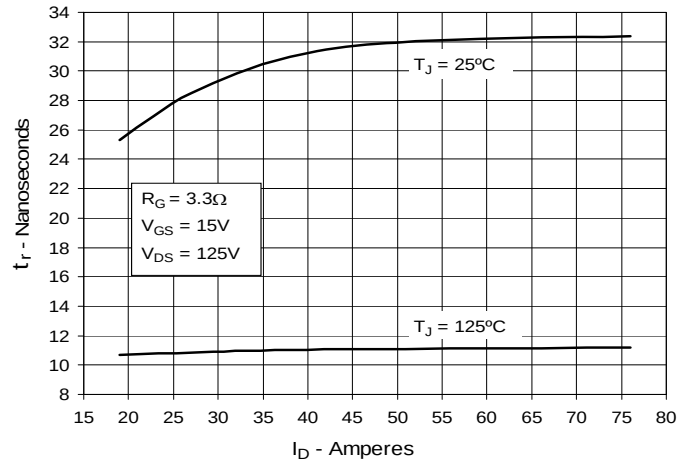


**Fig. 15. Resistive Turn-on
Switching Times vs. Gate Resistance**

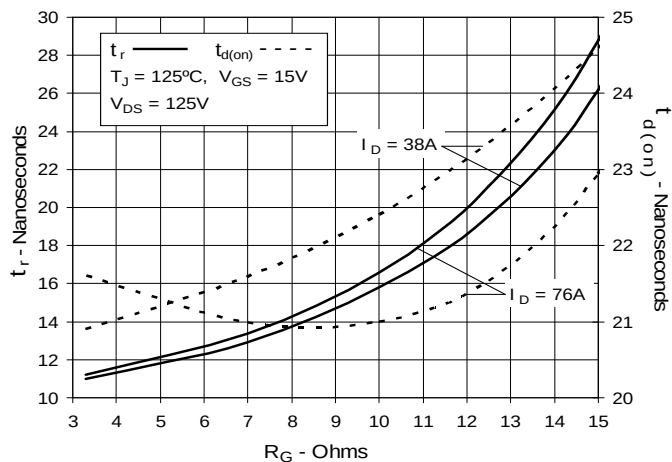


**Fig. 16. Resistive Turn-off
Switching Times vs. Junction Temperature**

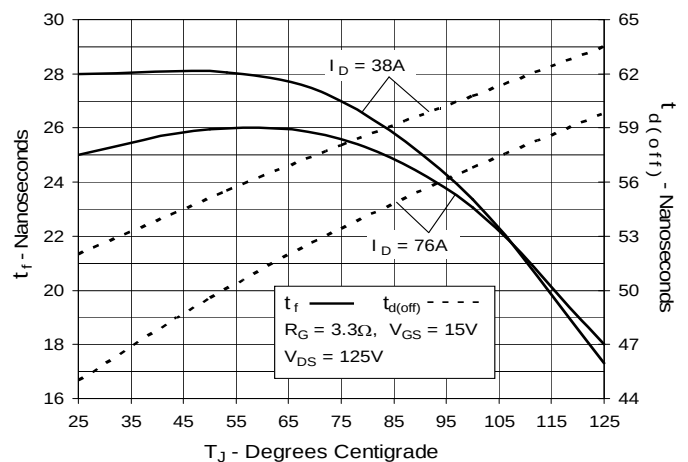


**Fig. 17. Resistive Turn-off
Switching Times vs. Drain Current**

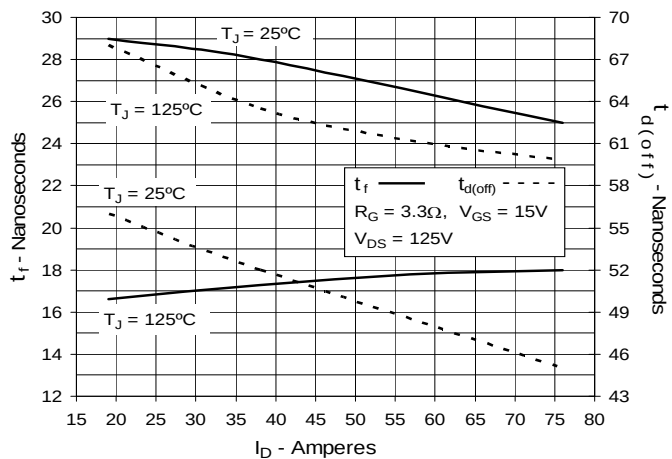
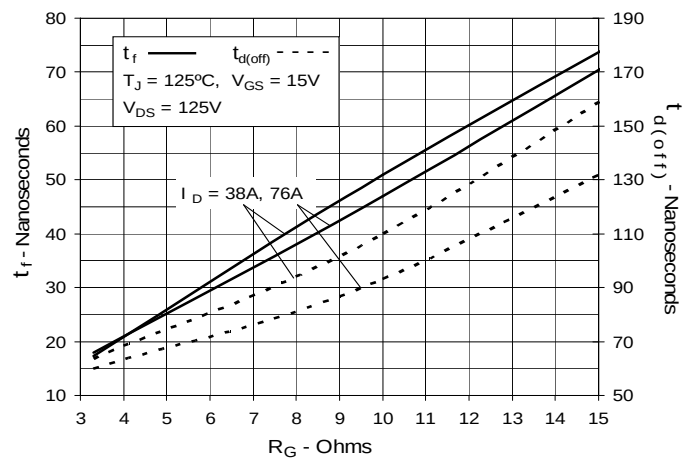


**Fig. 18. Resistive Turn-off
Switching Times vs. Gate Resistance**





Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)

Факс: 8 (812) 320-02-42

Электронная почта: org@eplast1.ru

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.