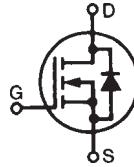


TrenchMV™ Power MOSFET

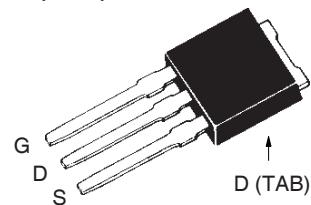
IXTU12N06T IXTY12N06T

N-Channel Enhancement Mode
Avalanche Rated

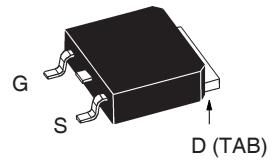


V_{DSS} = 60V
 I_{D25} = 12A
 $R_{DS(on)}$ \leq 85mΩ

TO-251 (IXTU)



TO-252 (IXTY)



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

Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	T_J = 25°C to 175°C	60	V
V_{DGR}	T_J = 25°C to 175°C, $R_{GS} = 1\text{M}\Omega$	60	V
V_{GSM}	Transient	± 20	V
I_{D25}	$T_c = 25^\circ\text{C}$	12	A
I_{DM}	$T_c = 25^\circ\text{C}$, pulse width limited by T_{JM}	30	A
I_{LRMS}	Package Current Limit, RMS TO-252	25	A
I_{AR}	$T_c = 25^\circ\text{C}$	3	A
E_{AS}	$T_c = 25^\circ\text{C}$	20	mJ
P_D	$T_c = 25^\circ\text{C}$	33	W
T_J		-55 ... +175	°C
T_{JM}		175	°C
T_{stg}		-55 ... +175	°C
T_L	Maximum lead temperature for soldering	300	°C
T_{SOLD}	1.6 mm (0.062 in.) from case for 10s	260	°C
M_d	Mounting torque	1.13/10	Nm/lb.in.
Weight	TO-251	0.40	g
	TO-252	0.35	g

Symbol	Test Conditions ($T_J = 25^\circ\text{C}$ unless otherwise specified)	Characteristic Values		
		Min.	Typ.	Max.
BV_{DSS}	$V_{GS} = 0\text{V}$, $I_D = 250\mu\text{A}$	60		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 25\mu\text{A}$	2.0		V
I_{GSS}	$V_{GS} = \pm 20\text{V}$, $V_{DS} = 0\text{V}$		± 50 nA	
I_{DSS}	$V_{DS} = V_{DSS}$ $V_{GS} = 0\text{V}$		1 μA	
			100 μA	
$R_{DS(on)}$	$V_{GS} = 10\text{V}$, $I_D = 0.5 \cdot I_{D25}$, Notes 1, 2		85 mΩ	

Features

- Ultra-low On Resistance
- Unclamped Inductive Switching (UIS) rated
- Low package inductance
 - easy to drive and to protect
- 175 °C Operating Temperature

Advantages

- Easy to mount
- Space savings
- High power density

Applications

- Automotive
 - Motor Drives
 - 42V Power Bus
 - ABS Systems
- DC/DC Converters and Off-line UPS
- Primary Switch for 24V and 48V Systems
- High Current Switching Applications

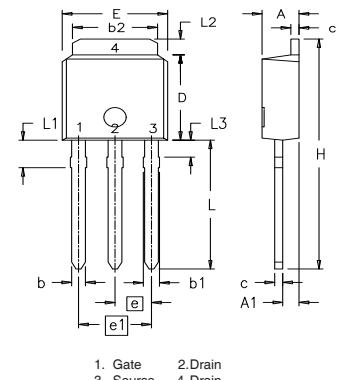
Symbol	Test Conditions ($T_J = 25^\circ\text{C}$, unless otherwise specified)	Characteristic Values		
		Min.	Typ.	Max.
g_{fs}	$V_{DS} = 10\text{V}$, $I_D = 0.5 \cdot I_{D25}$, Notes 1	2.9	4.7	S
C_{iss} C_{oss} C_{rss}	$V_{GS} = 0\text{V}$, $V_{DS} = 25\text{V}$, $f = 1\text{MHz}$	256		pF
		46		pF
		10.4		pF
$t_{d(on)}$ t_r $t_{d(off)}$ t_f	Resistive Switching Times $V_{GS} = 10\text{V}$, $V_{DS} = 0.5 \cdot V_{DSS}$, $I_D = 6\text{A}$ $R_G = 50\Omega$ (External)	12		ns
		29		ns
		29		ns
		18		ns
$Q_{g(on)}$ Q_{gs} Q_{gd}	$V_{GS} = 10\text{V}$, $V_{DS} = 0.5 \cdot V_{DSS}$, $I_D = 6\text{A}$	3.4		nC
		1.0		nC
		0.9		nC
R_{thJC}			4.5	$^\circ\text{C}/\text{W}$

Symbol	Test Conditions ($T_J = 25^\circ\text{C}$, unless otherwise specified)	Characteristic Values		
		Min.	Typ.	Max.
I_s	$V_{GS} = 0\text{V}$		12	A
I_{SM}	Repetitive, pulse width limited by T_{JM}		48	A
V_{SD}	$I_F = 6\text{A}$, $V_{GS} = 0\text{V}$, Note 1		1.2	V
t_{rr} I_{RM}	$I_F = 6\text{A}$, $V_{GS} = 0\text{V}$, $-di/dt = 100\text{A}/\mu\text{s}$ $V_R = 30\text{V}$	30		ns
		1.34		A

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

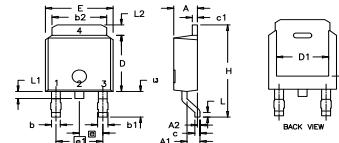
2. On through-hole packages, $R_{DS(on)}$ Kelvin test contact location must be 5mm or less from the package body.

TO-251 (IXTU) Outline



Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	2.19	2.38	.086	.094
A1	0.89	1.14	.035	.045
b	0.64	0.89	.025	.035
b1	0.76	1.14	.030	.045
b2	5.21	5.46	.205	.215
c	0.46	0.58	.018	.023
c1	0.46	0.58	.018	.023
D	5.97	6.22	.235	.245
E	6.35	6.73	.250	.265
e	2.28	BSC	.090	BSC
e1	4.57	BSC	.180	BSC
H	17.02	17.78	.670	.700
L	8.89	9.65	.350	.380
L1	1.91	2.28	.075	.090
L2	0.89	1.27	.035	.050

TO-252 (IXTY) Outline



Pins: 1 - Gate 2,4 - Drain
3 - Source

Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	2.19	2.38	0.086	0.094
A1	0.89	1.14	0.035	0.045
A2	0	0.13	0	0.005
b	0.64	0.89	0.025	0.035
b1	0.76	1.14	0.030	0.045
b2	5.21	5.46	0.205	0.215
c	0.46	0.58	0.018	0.023
c1	0.46	0.58	0.018	0.023
D	5.97	6.22	0.235	0.245
D1	4.32	5.21	0.170	0.205
E	6.35	6.73	0.250	0.265
E1	4.32	5.21	0.170	0.205
e	2.28	BSC	0.090	BSC
e1	4.57	BSC	0.180	BSC
H	9.40	10.42	0.370	0.410
L	0.51	1.02	0.020	0.040
L1	0.64	1.02	0.025	0.040
L2	0.89	1.27	0.035	0.050
L3	2.54	2.92	0.100	0.115

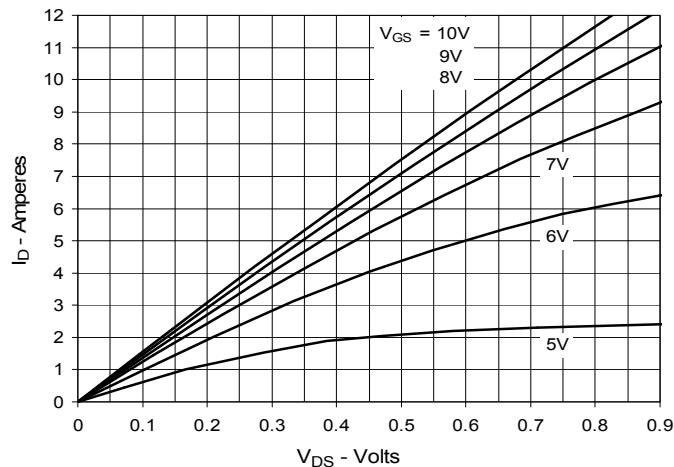
PRELIMINARY TECHNICAL INFORMATION

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.

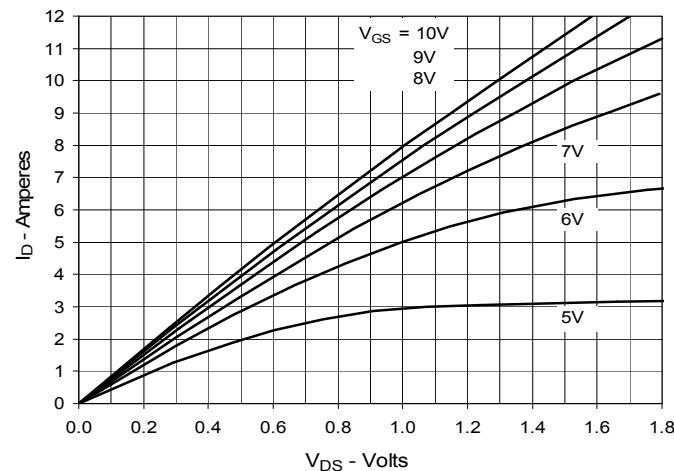
IXYS reserves the right to change limits, test conditions, and dimensions.

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 7,157,338B2 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

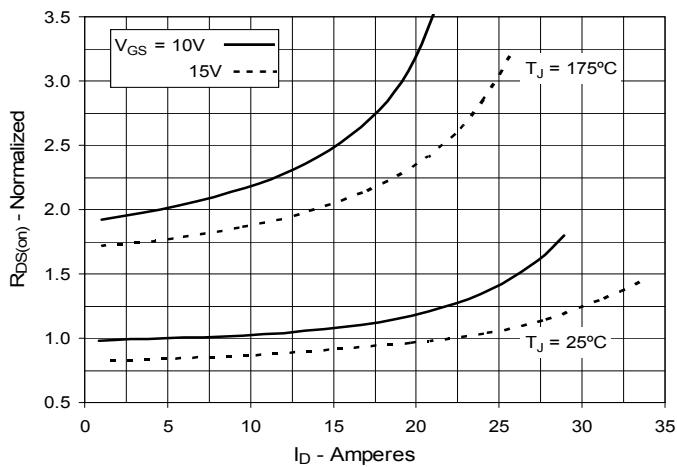
**Fig. 1. Output Characteristics
@ 25°C**



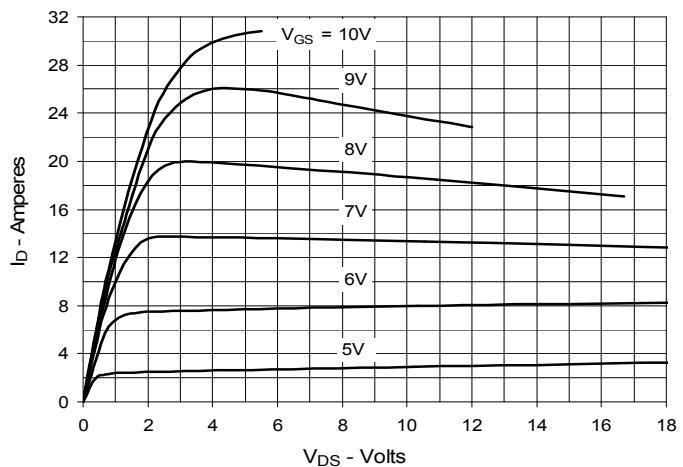
**Fig. 3. Output Characteristics
@ 150°C**



**Fig. 5. $R_{DS(on)}$ Normalized to $I_D = 6A$ Value
vs. Drain Current**



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



**Fig. 4. $R_{DS(on)}$ Normalized to $I_D = 6A$ Value
vs. Junction Temperature**

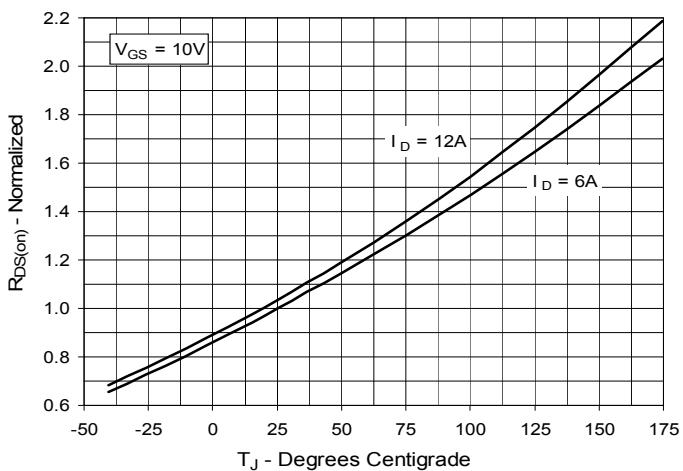


Fig. 6. Drain Current vs. Case Temperature

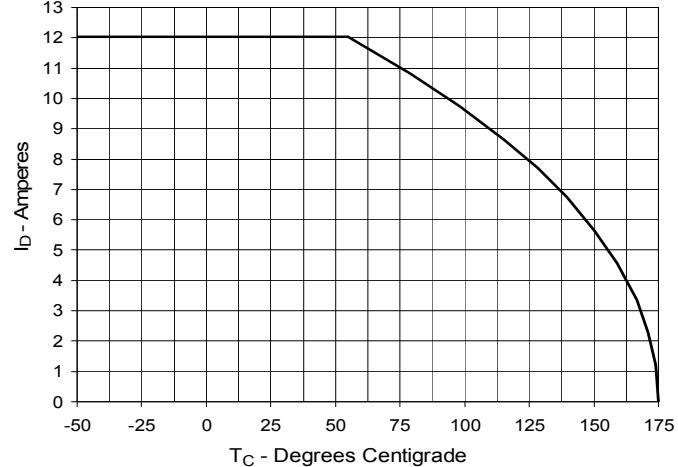
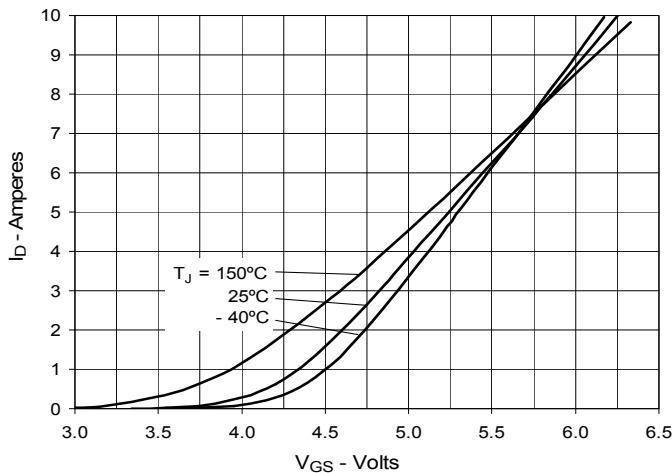
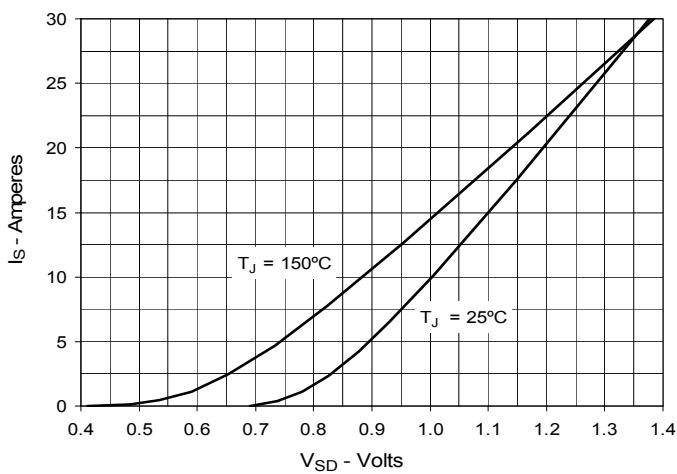
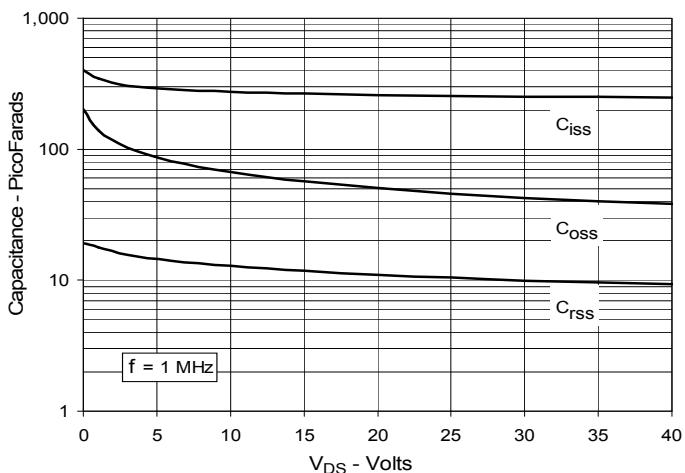
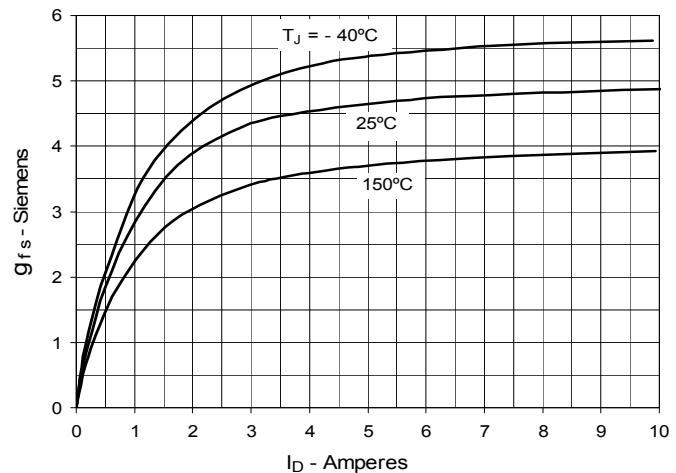
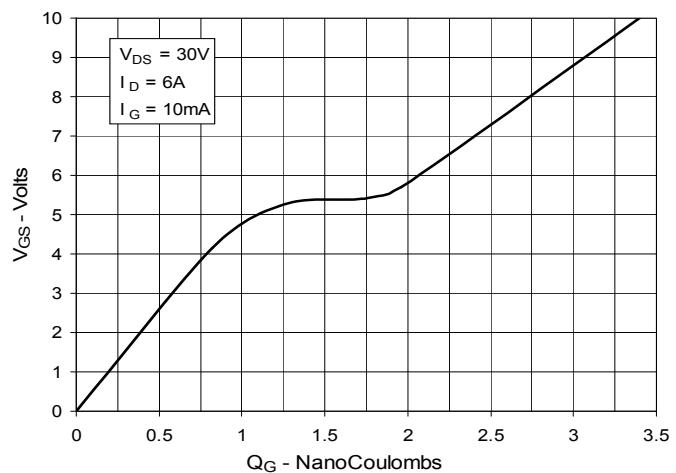
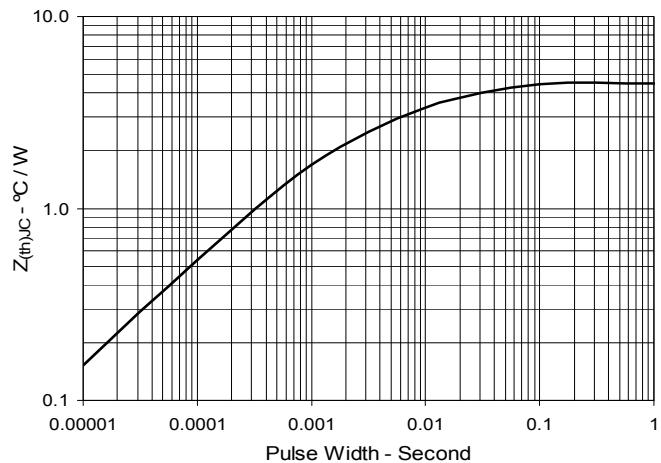
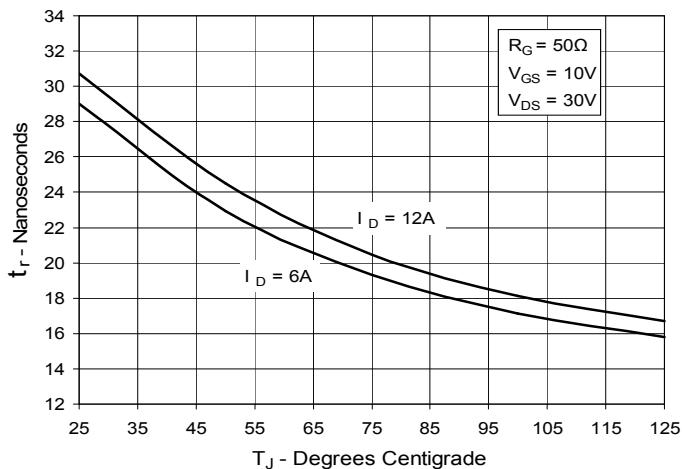
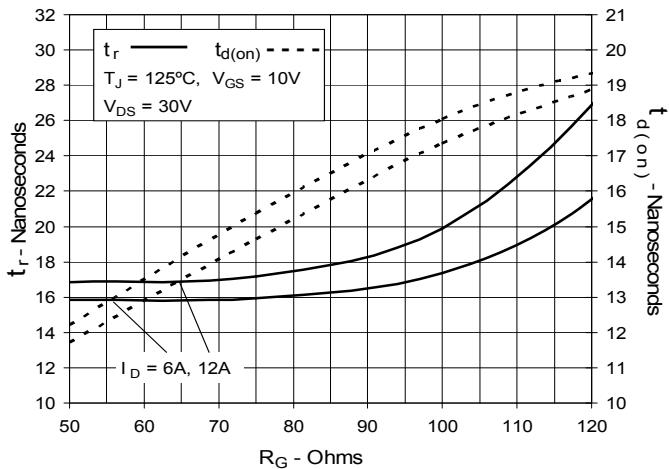


Fig. 7. Input Admittance

Fig. 9. Forward Voltage Drop of Intrinsic Diode

Fig. 11. Capacitance

Fig. 8. Transconductance

Fig. 10. Gate Charge

Fig. 12. Maximum Transient Thermal Impedance


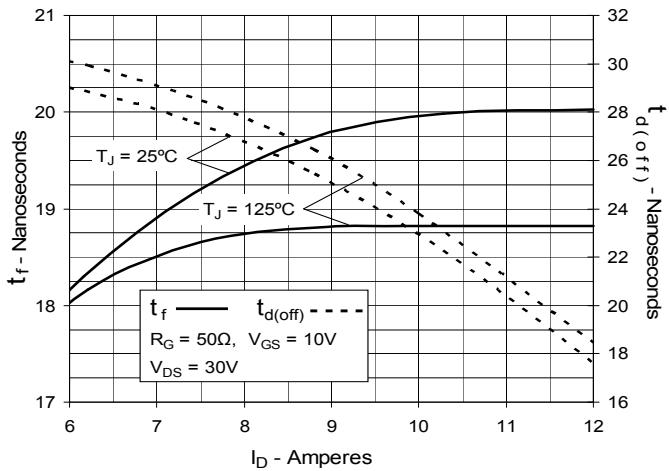
**Fig. 13. Resistive Turn-on
Rise Time vs. Junction Temperature**



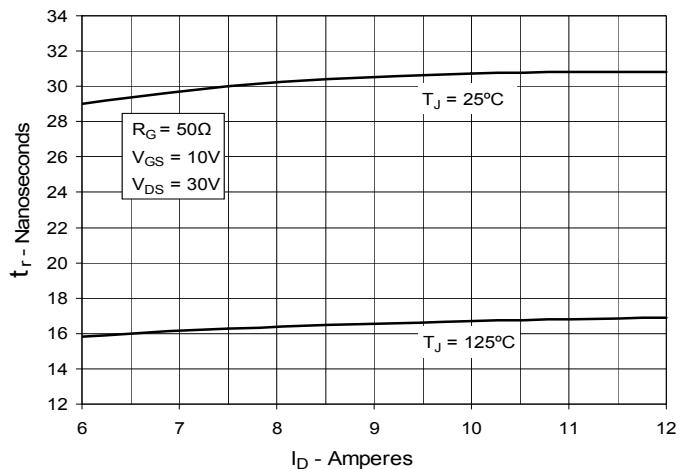
**Fig. 15. Resistive Turn-on
Switching Times vs. Gate Resistance**



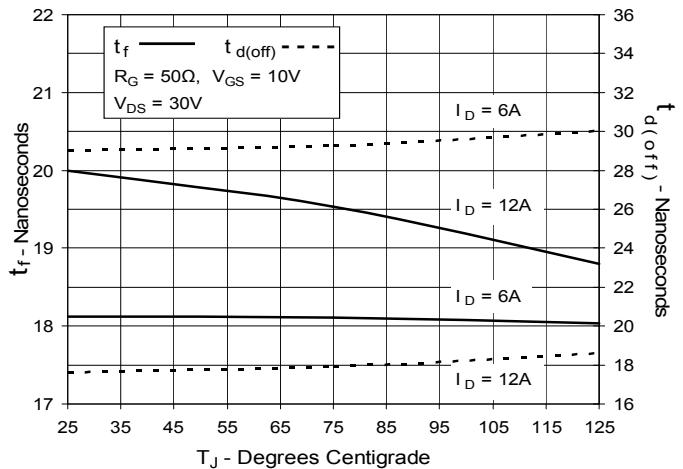
**Fig. 17. Resistive Turn-off
Switching Times vs. Drain Current**



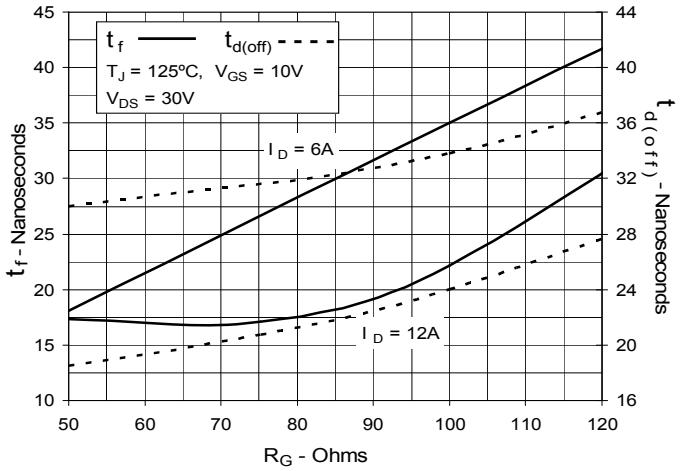
**Fig. 14. Resistive Turn-on
Rise Time vs. Drain Current**



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



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





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- 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, помошь в подборе аналогов, поставка прототипов;
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- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
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- 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.