IXTY32P05T Datasheet

https://www.DiGi-Electronics.com

DiGi Electronics Part Number	IXTY32P05T-DG
Manufacturer	IXYS
Manufacturer Product Number	IXTY32P05T
Description	MOSFET P-CH 50V 32A TO252
Detailed Description	P-Channel 50 V 32A (Tc) 83W (Tc) Surface Mount TO-252AA

Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
IXTY32P05T	IXYS
Series:	Product Status:
TrenchP™	Active
FET Type:	Technology:
P-Channel	MOSFET (Metal Oxide)
Drain to Source Voltage (Vdss):	Current - Continuous Drain (Id) @ 25°C:
50 V	32A (Tc)
Drive Voltage (Max Rds On, Min Rds On):	Rds On (Max) @ Id, Vgs:
10V	39mOhm @ 16A, 10V
Vgs(th) (Max) @ Id:	Gate Charge (Qg) (Max) @ Vgs:
4.5V @ 250µA	46 nC @ 10 V
Vgs (Max):	Input Capacitance (Ciss) (Max) @ Vds:
±15V	1975 pF @ 25 V
FET Feature:	Power Dissipation (Max):
-	83W (Tc)
Operating Temperature:	Mounting Type:
-55°C ~ 150°C (TJ)	Surface Mount
Supplier Device Package:	Package / Case:
TO-252AA	TO-252-3, DPAK (2 Leads + Tab), SC-63
Base Product Number:	
IXTY32	

Environmental & Export classification

RoHS Status:	Moisture Sensitivity Level (MSL):
ROHS3 Compliant	1 (Unlimited)
REACH Status:	ECCN:
REACH Unaffected	EAR99
HTSUS:	
8541.29.0095	

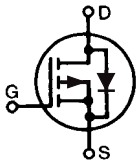
IXYS

TrenchP™ Power MOSFET

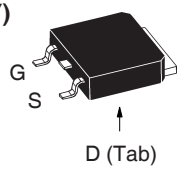
IXTY32P05T
IXTA32P05T
IXTP32P05T

V_{DSS} = - 50V
I_{D25} = - 32A
$R_{DS(on)}$ ≤ 39mΩ

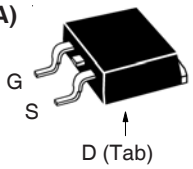
P-Channel Enhancement Mode
Avalanche Rated



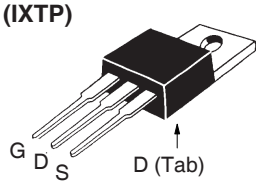
TO-252 (IXTY)



TO-263 (IXTA)



TO-220 (IXTP)



G = Gate D = Drain
S = Source Tab = Drain

Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	T_J = 25°C to 150°C	- 50	V
V_{DGR}	T_J = 25°C to 150°C, R_{GS} = 1MΩ	- 50	V
V_{GSS}	Continuous	±15	V
V_{GSM}	Transient	±25	V
I_{D25}	T_C = 25°C	- 32	A
I_{DM}	T_C = 25°C, Pulse Width Limited by T_{JM}	-110	A
I_A	T_C = 25°C	- 32	A
E_{AS}	T_C = 25°C	200	mJ
P_D	T_C = 25°C	83	W
T_J		-55 ... +150	°C
T_{JM}		150	°C
T_{stg}		-55 ... +150	°C
T_L	Maximum Lead Temperature for Soldering	300	°C
T_{SOLD}	1.6 mm (0.062in.) from Case for 10s	260	°C
M_d	Mounting Torque (TO-220)	1.13 / 10	Nm/lb.in
Weight	TO-252	0.35	g
	TO-263	2.50	g
	TO-220	3.00	g

Symbol	Test Conditions (T_J = 25°C, Unless Otherwise Specified)	Characteristic Values Min.	Typ.	Max.	
BV_{DSS}	V_{GS} = 0V, I_D = - 250μA	- 50			V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, I_D = - 250μA	- 2.5		- 4.5	V
I_{GSS}	V_{GS} = ±15V, V_{DS} = 0V			±50	nA
I_{DSS}	$V_{DS} = V_{DSS}$, V_{GS} = 0V			- 3	μA
	T_J = 125°C			-100	μA
$R_{DS(on)}$	V_{GS} = -10V, I_D = 0.5 • I_{D25}, Note 1			39	mΩ

Features

- International Standard Packages
- Avalanche Rated
- Extended FBSOA
- Fast Intrinsic Diode
- Low $R_{DS(ON)}$ and Q_G

Advantages

- Easy to Mount
- Space Savings
- High Power Density

Applications

- High-Side Switching
- Push Pull Amplifiers
- DC Choppers
- Automatic Test Equipment
- Current Regulators
- Battery Charger Applications

Symbol	Test Conditions (T_J = 25°C, Unless Otherwise Specified)	Characteristic Values Min.	Typ.	Max.
g_{fs}	V_{DS} = -10V, I_D = 0.5 • I_{D25}, Note 1	11	17	S
C_{iss}	V_{GS} = 0V, V_{DS} = - 25V, f = 1MHz		1975	pF
C_{oss}			315	pF
C_{rss}			160	pF
$t_{d(on)}$	**Resistive Switching Times**		20	ns
t_r	V_{GS} = -10V, V_{DS} = - 30V, I_D = 0.5 • I_{D25}		28	ns
$t_{d(off)}$	R_G = 10Ω (External)		39	ns
t_f			27	ns
$Q_{g(on)}$	V_{GS} = -10V, V_{DS} = 0.5 • V_{DSS}, I_D = 0.5 • I_{D25}		46	nC
Q_{gs}			19	nC
Q_{gd}			11	nC
R_{thJC}				1.5 °C/W
R_{thCS}	TO-220		0.50	°C/W

Source-Drain Diode

Symbol	Test Conditions (T_J = 25°C, Unless Otherwise Specified)	Characteristic Values Min.	Typ.	Max.
I_S	V_{GS} = 0V			- 32 A
I_{SM}	Repetitive, Pulse Width Limited by T_{JM}			-128 A
V_{SD}	I_F = I_S, V_{GS} = 0V, Note 1			-1.5 V
t_{rr}	I_F = 0.5 • I_{D25}, -di/dt = -100A/μs		26	ns
Q_{RM}	V_R = - 25V, V_{GS} = 0V		21	nC
I_{RM}			-1.6	A

Note 1: Pulse test, t ≤ 300μs, duty cycle, d ≤ 2%.

Fig. 1. Output Characteristics @ T_J = 25°C

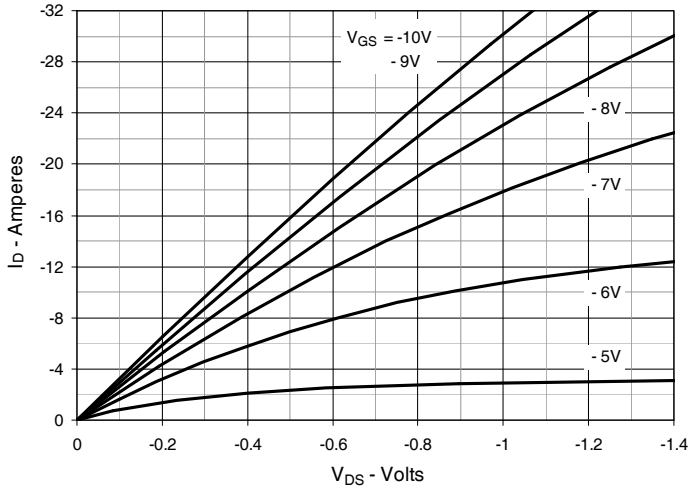


Fig. 2. Extended Output Characteristics @ T_J = 25°C

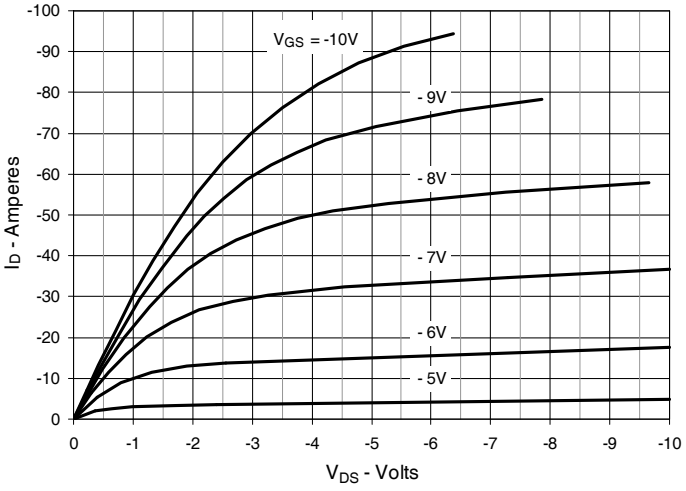


Fig. 3. Output Characteristics @ T_J = 125°C

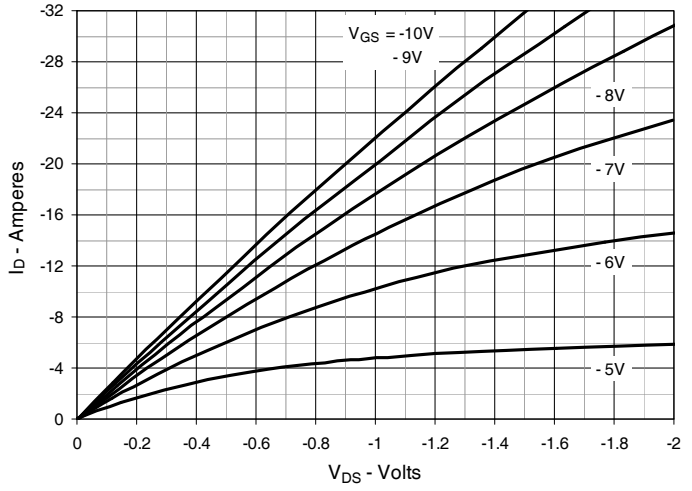


Fig. 4. $R_{DS(on)}$ Normalized to I_D = -16A Value vs. Junction Temperature

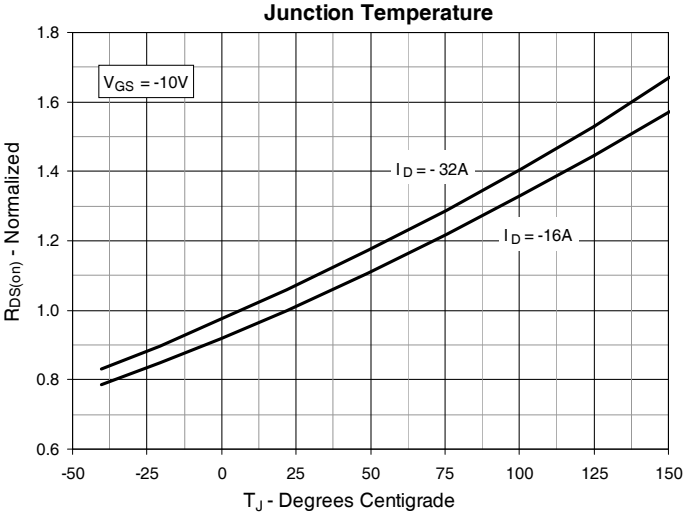


Fig. 5. $R_{DS(on)}$ Normalized to I_D = -16A Value vs. Drain Current

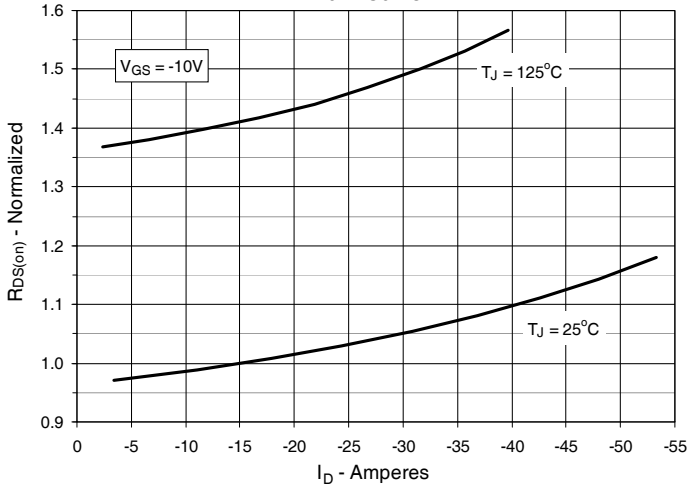


Fig. 6. Maximum Drain Current vs. Case Temperature

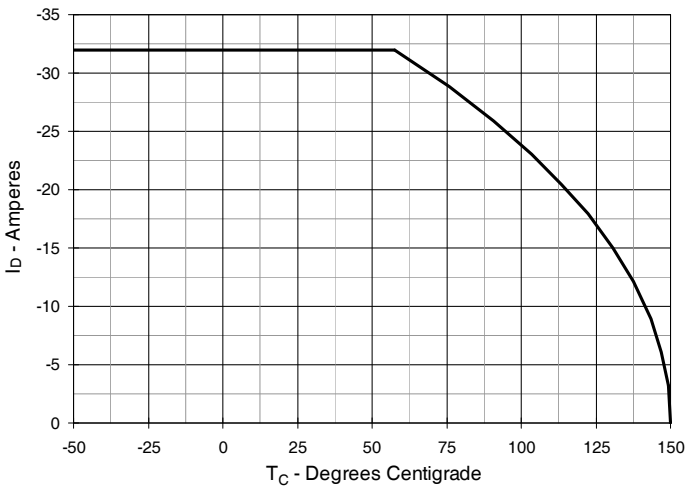


Fig. 7. Input Admittance

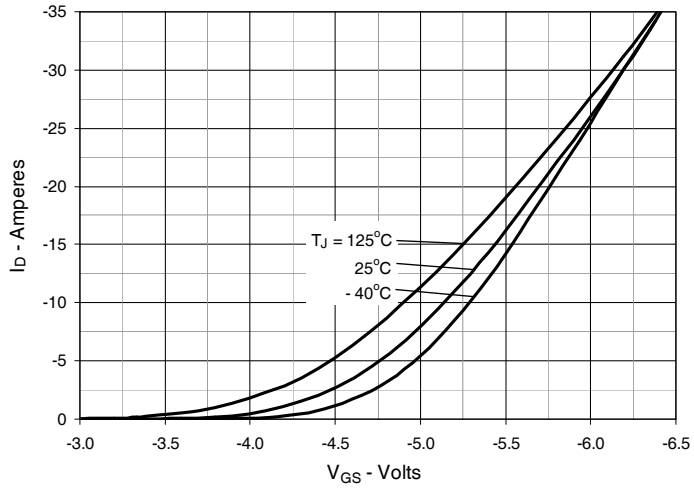


Fig. 8. Transconductance

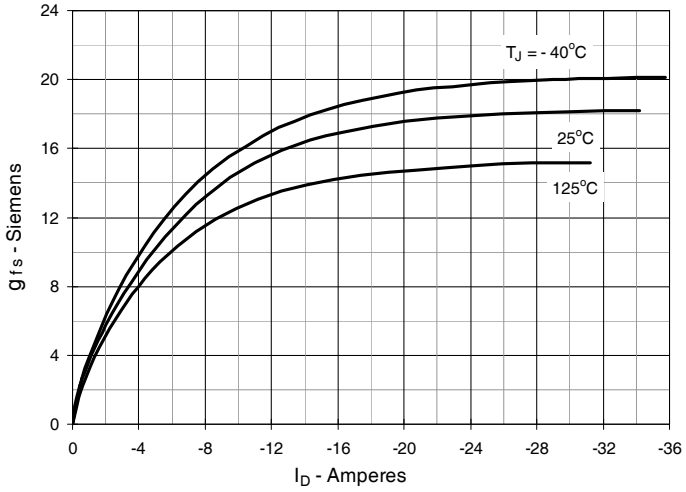


Fig. 9. Forward Voltage Drop of Intrinsic Diode

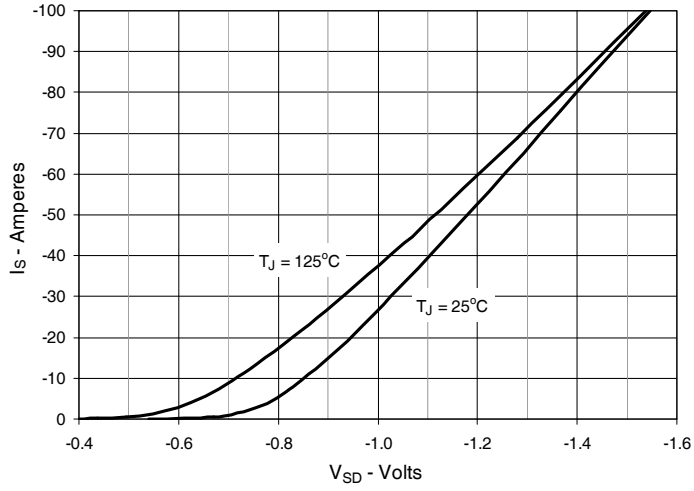


Fig. 10. Gate Charge

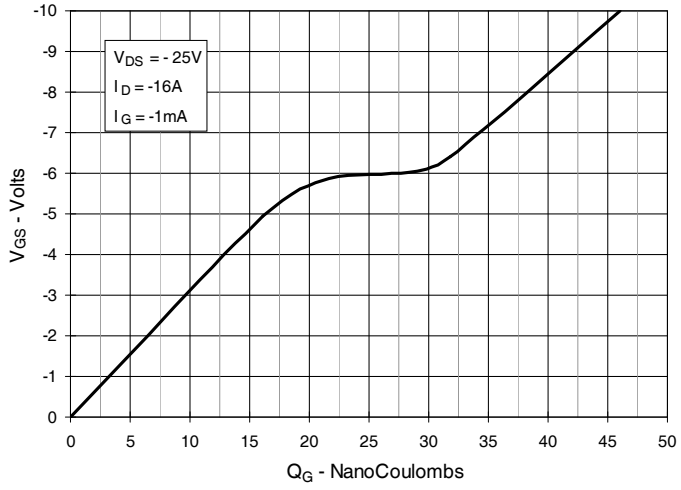


Fig. 11. Capacitance

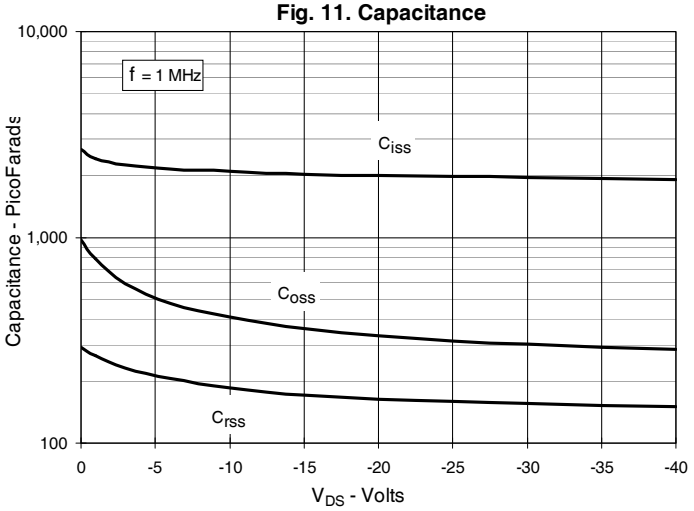


Fig. 12. Forward-Bias Safe Operating Area

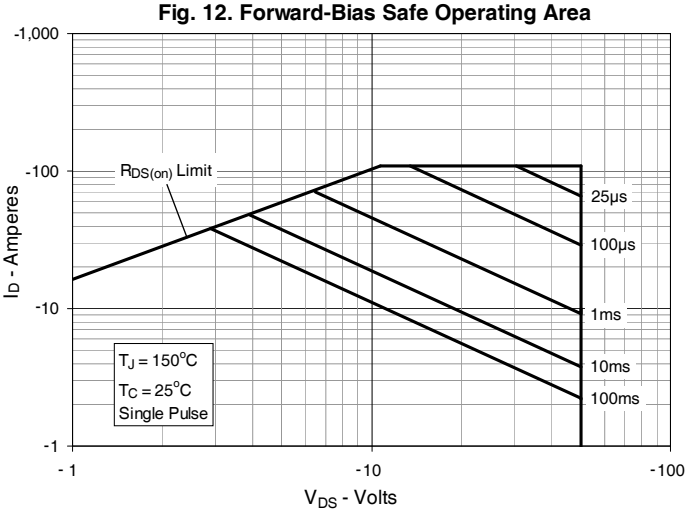


Fig. 13. Resistive Turn-on Rise Time vs. Junction Temperature

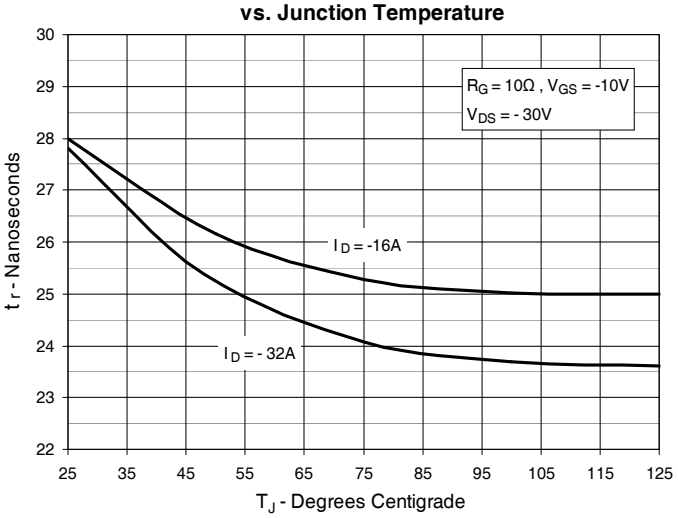


Fig. 14. Resistive Turn-on Rise Time vs. Drain Current

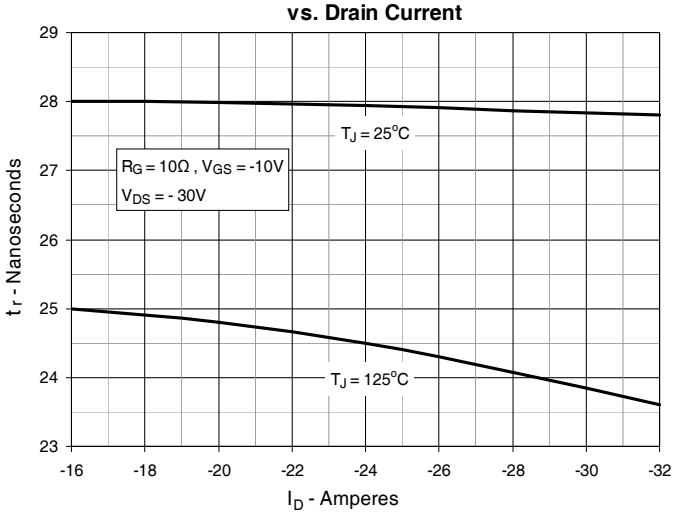


Fig. 15. Resistive Turn-on Switching Times vs. Gate Resistance

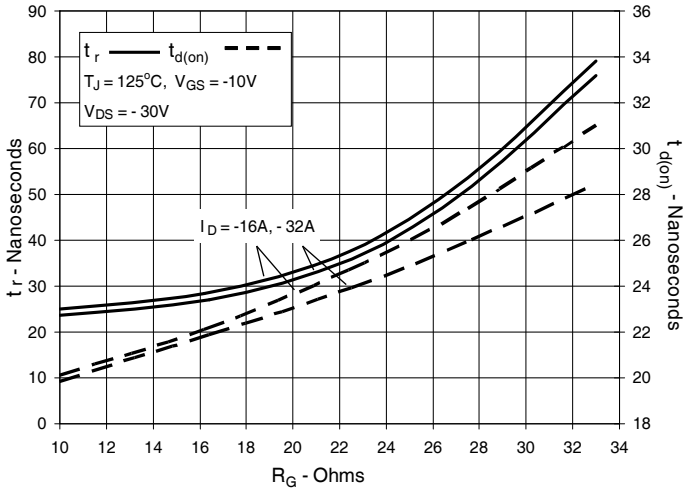


Fig. 16. Resistive Turn-off Switching Times vs. Junction Temperature

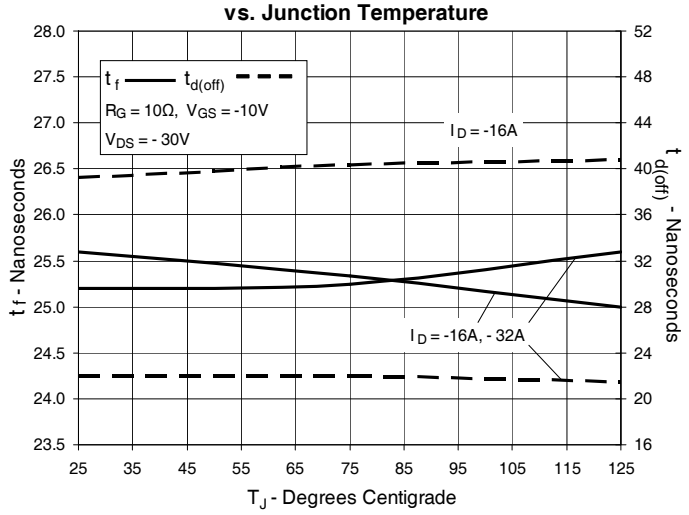


Fig. 17. Resistive Turn-off Switching Times vs. Drain Current

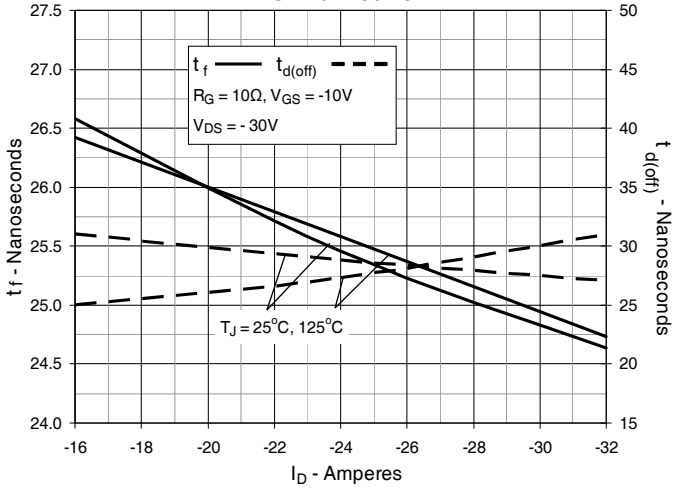


Fig. 18. Resistive Turn-off Switching Times vs. Gate Resistance

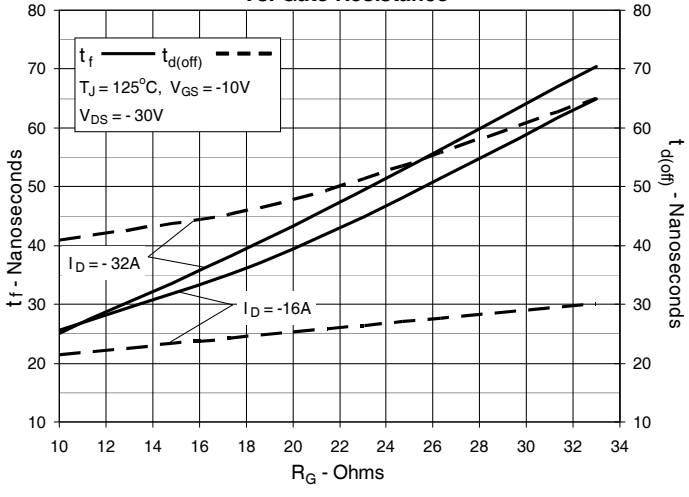
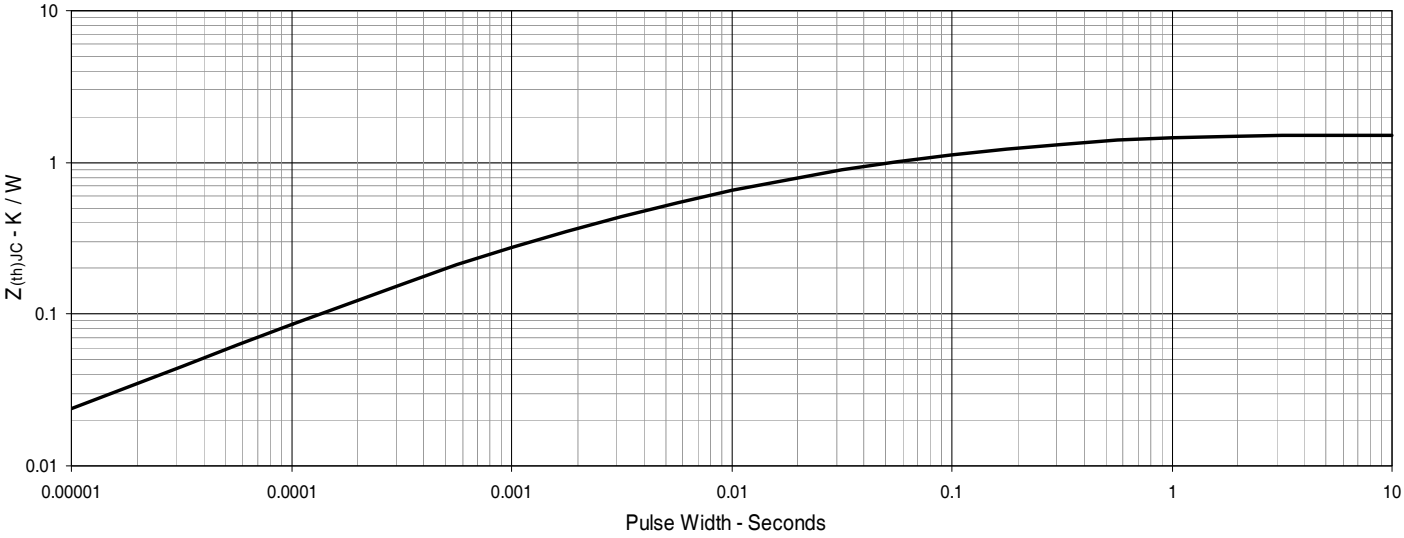
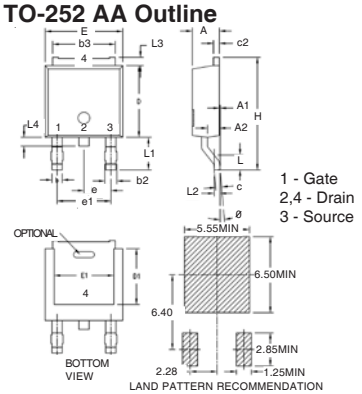


Fig. 19. Maximum Transient Thermal Impedance

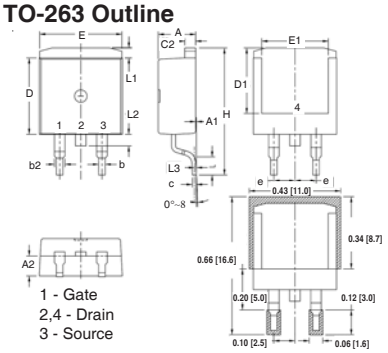


TO-252 AA Outline



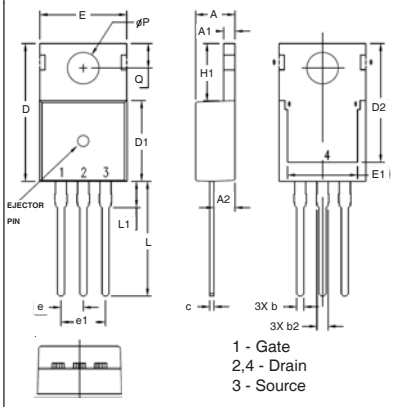
SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.086	.094	2.19	2.38
A1	0	.005	0	0.12
A2	.038	.046	0.97	1.17
b	.025	.035	0.64	0.89
b2	.030	.045	0.76	1.14
b3	.200	.215	5.08	5.46
c	.018	.024	0.46	0.61
c2	.018	.023	0.46	0.58
D	.235	.245	5.97	6.22
D1	.180	.205	4.57	5.21
E	.250	.265	6.35	6.73
E1	.170	.205	4.32	5.21
e	.090 BSC		2.28 BSC	
e1	.180 BSC		4.57 BSC	
H	.370	.410	9.40	10.42
L	.055	.070	1.40	1.78
L1	.100	.115	2.54	2.92
L2	.020 BSC		0.50 BSC	
L3	.025	.040	0.64	1.02
L4	.025	.040	0.64	1.02
θ	0°	10°	0°	10°

TO-263 Outline



SYM	INCHES		MILLIMETER	
	MIN	MAX	MIN	MAX
A	.170	.185	4.30	4.70
A1	.000	.008	0.00	0.20
A2	.091	.098	2.30	2.50
b	.028	.035	0.70	0.90
b2	.046	.060	1.18	1.52
C	.018	.024	0.45	0.60
C2	.049	.060	1.25	1.52
D	.340	.370	8.63	9.40
D1	.300	.327	7.62	8.30
E	.380	.410	9.65	10.41
E1	.270	.330	6.86	8.38
e	.100 BSC		2.54 BSC	
H	.580	.620	14.73	15.75
L	.075	.105	1.91	2.67
L1	.039	.060	1.00	1.52
L2	—	.070	—	1.77
L3	.010 BSC		0.254 BSC	

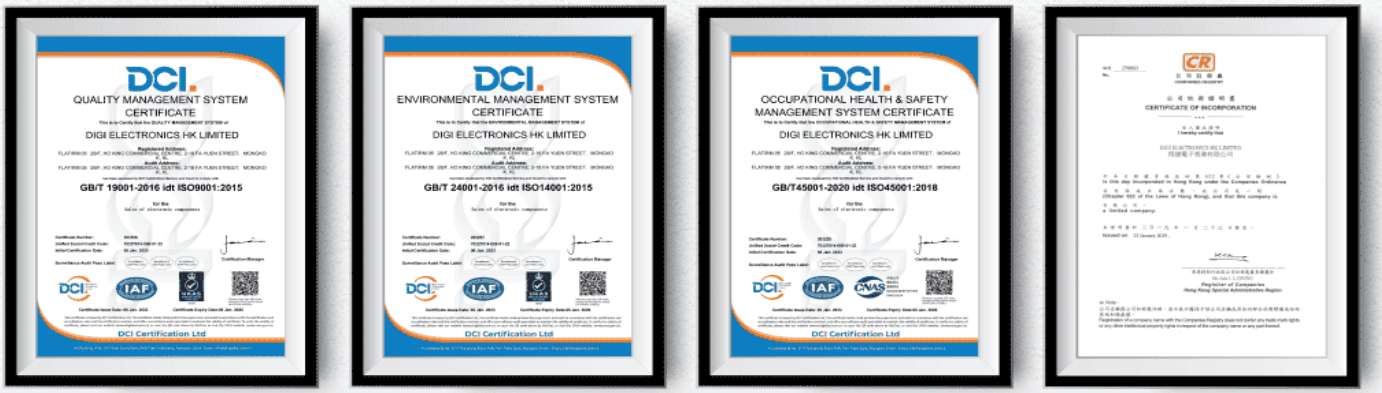
TO-220 Outline



SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.169	.185	4.30	4.70
A1	.047	.055	1.20	1.40
A2	.079	.106	2.00	2.70
b	.024	.039	0.60	1.00
b2	.045	.057	1.15	1.45
c	.014	.026	0.35	0.65
D	.587	.626	14.90	15.90
D1	.335	.370	8.50	9.40
(D2)	.500	.531	12.70	13.50
E	.382	.406	9.70	10.30
(E1)	.283	.323	7.20	8.20
e	.100 BSC		2.54 BSC	
e1	.200 BSC		5.08 BSC	
H1	.244	.268	6.20	6.80
L	.492	.547	12.50	13.90
L1	.110	.154	2.80	3.90
ØP	.134	.150	3.40	3.80
Q	.106	.126	2.70	3.20

OUR CERTIFICATE

DiGi provide top-quality products and perfect service for customer worldwide through standardization, technological innovation and continuous improvement. DiGi through third-party certification, we striciy control the quality of products and services. Welcome your RFQ to Email: Info@DiGi-Electronics.com



Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

DiGi is a global authorized distributor of electronic components.