



**THE DATASHEET OF
IXTP240N055T**



TrenchMV™ Power MOSFET

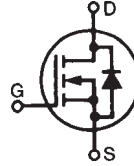
IXTA240N055T IXTP240N055T

$$V_{DSS} = 55 \text{ V}$$

$$I_{D25} = 240 \text{ A}$$

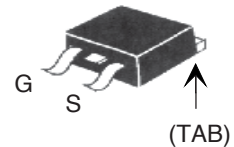
$$R_{DS(on)} \leq 3.6 \text{ m}\Omega$$

N-Channel Enhancement Mode
Avalanche Rated

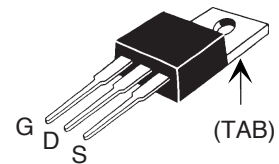


Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	$T_J = 25^\circ\text{C}$ to 175°C	55	V
V_{DGR}	$T_J = 25^\circ\text{C}$ to 175°C ; $R_{GS} = 1 \text{ M}\Omega$	55	V
V_{GSM}	Transient	± 20	V
I_{D25}	$T_C = 25^\circ\text{C}$	240	A
I_{LRMS}	Lead Current Limit, RMS	75	A
I_{DM}	$T_C = 25^\circ\text{C}$, pulse width limited by T_{JM}	650	A
I_{AR}	$T_C = 25^\circ\text{C}$	25	A
E_{AS}	$T_C = 25^\circ\text{C}$	1.0	J
dv/dt	$I_S \leq I_{DM}$, $di/dt \leq 100 \text{ A}/\mu\text{s}$, $V_{DD} \leq V_{DSS}$ $T_J \leq 175^\circ\text{C}$, $R_G = 5 \Omega$	3	V/ns
P_D	$T_C = 25^\circ\text{C}$	480	W
T_J		-55 ... +175	$^\circ\text{C}$
T_{JM}		175	$^\circ\text{C}$
T_{stg}		-40 ... +175	$^\circ\text{C}$
T_L	1.6 mm (0.062 in.) from case for 10 s	300	$^\circ\text{C}$
T_{SOLD}	Plastic body for 10 seconds	260	$^\circ\text{C}$
M_d	Mounting torque (TO-220)	1.13 / 10	Nm/lb.in.
Weight	TO-220	3	g
	TO-263	2.5	g

TO-263 (IXTA)



TO-220 (IXTP)



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

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
 - High Side Switch
 - 12V Battery
 - ABS Systems
- DC/DC Converters and Off-line UPS
- Primary- Side Switch
- High Current Switching Applications

Symbol	Test Conditions ($T_J = 25^\circ\text{C}$ unless otherwise specified)	Characteristic Values		
		Min.	Typ.	Max.
BV_{DSS}	$V_{GS} = 0 \text{ V}$, $I_D = 250 \mu\text{A}$	55		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 250 \mu\text{A}$	2.0		V
I_{GSS}	$V_{GS} = \pm 20 \text{ V}$, $V_{DS} = 0 \text{ V}$			$\pm 200 \text{ nA}$
I_{DSS}	$V_{DS} = V_{DSS}$			5 μA
	$V_{GS} = 0 \text{ V}$ $T_J = 150^\circ\text{C}$			250 μA
$R_{DS(on)}$	$V_{GS} = 10 \text{ V}$, $I_D = 25 \text{ A}$, Notes 1, 2	3.0	3.6	$\text{m}\Omega$

Fig. 1. Output Characteristics @ 25°C

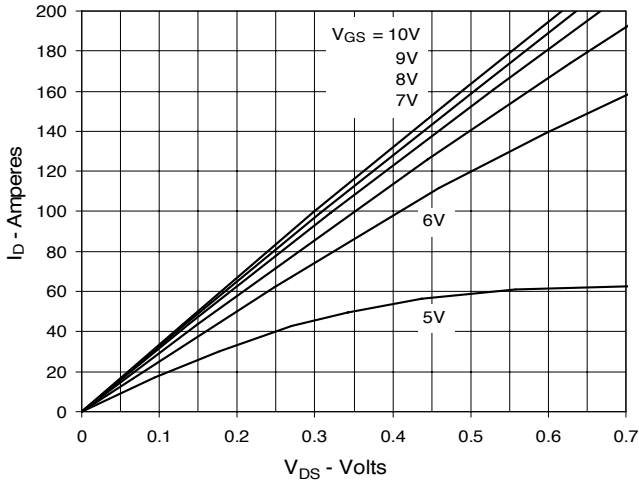


Fig. 2. Extended Output Characteristics @ 25°C

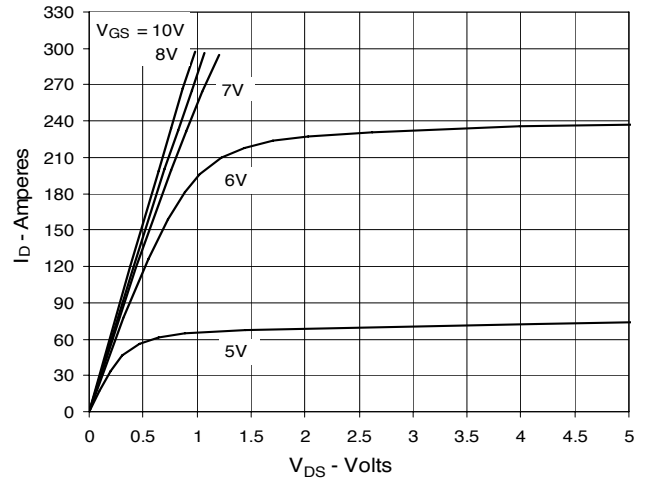


Fig. 3. Output Characteristics @ 150°C

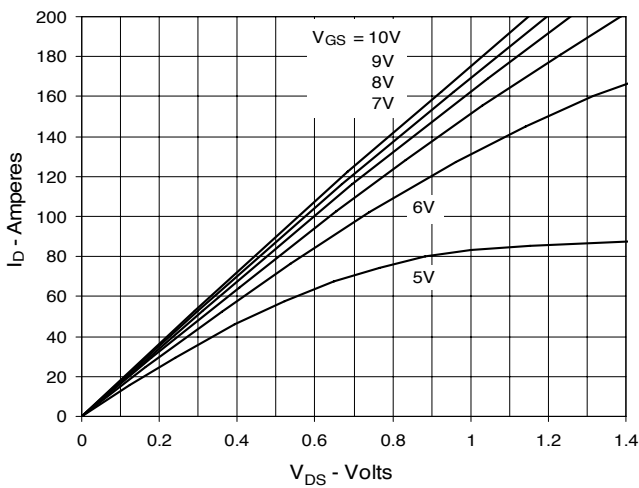


Fig. 4. $R_{DS(on)}$ Normalized to $I_D = 120A$ Value vs. Junction Temperature

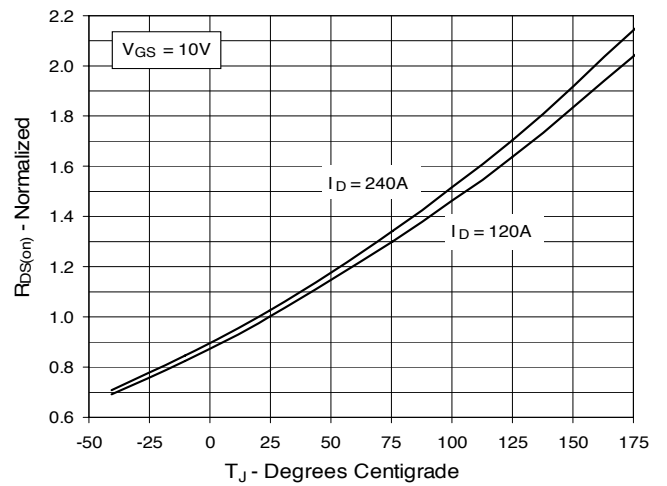


Fig. 5. $R_{DS(on)}$ Normalized to $I_D = 120A$ Value vs. Drain Current

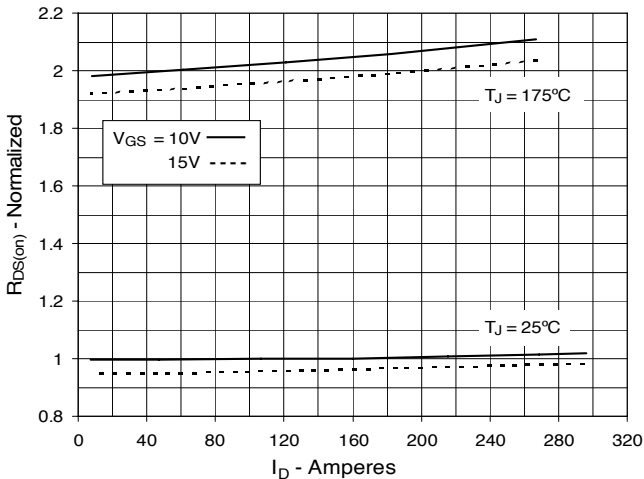


Fig. 6. Drain Current vs. Case Temperature

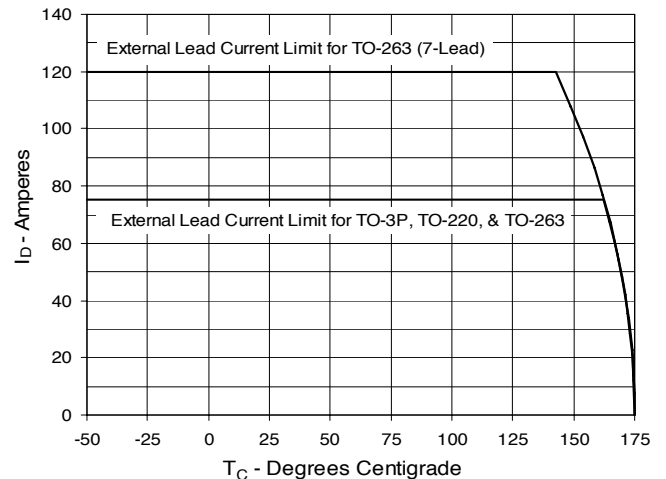


Fig. 7. Input Admittance

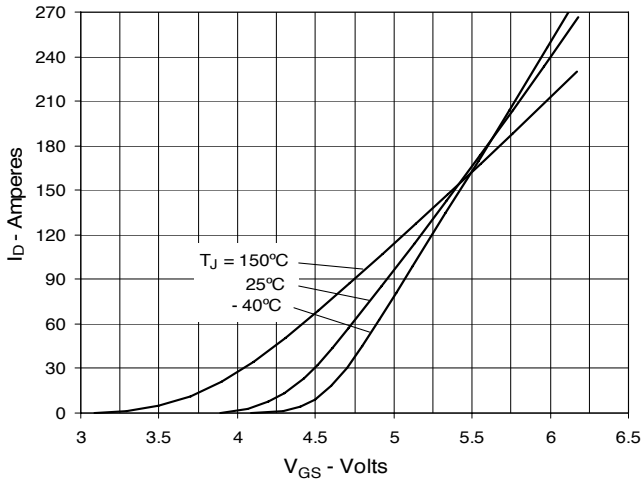


Fig. 8. Transconductance

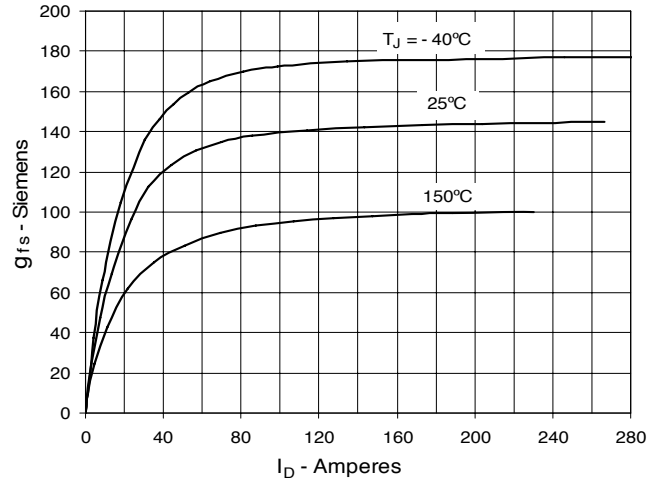


Fig. 9. Forward Voltage Drop of Intrinsic Diode

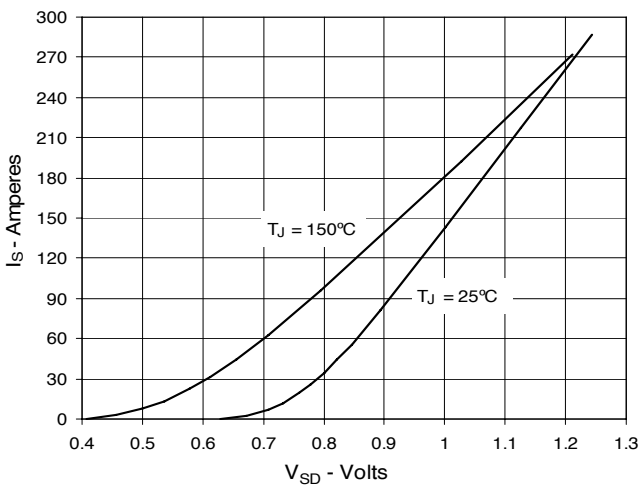


Fig. 10. Gate Charge

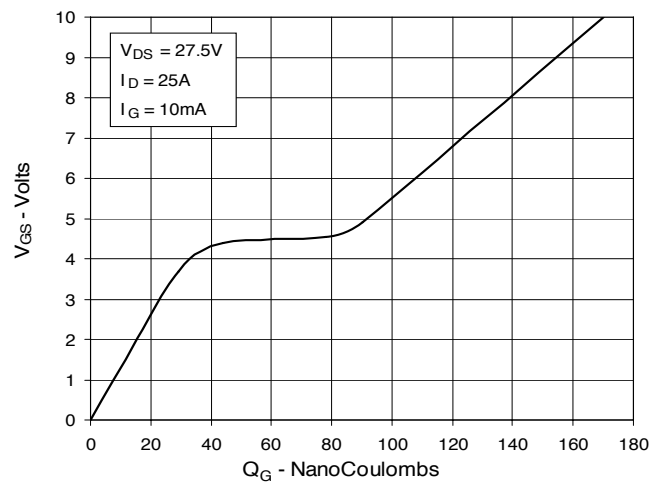


Fig. 11. Capacitance

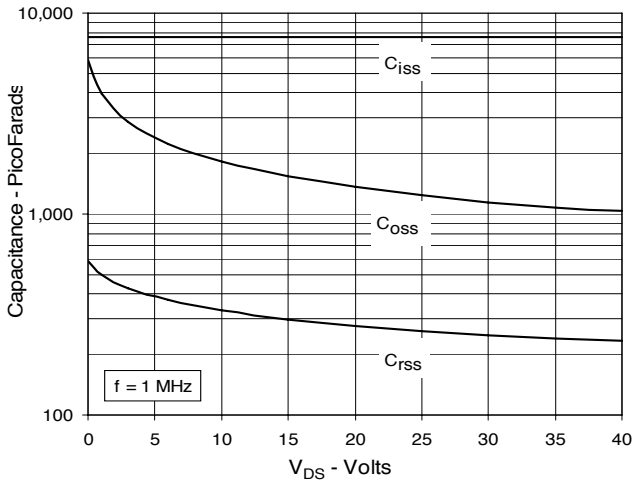


Fig. 12. Maximum Transient Thermal Impedance

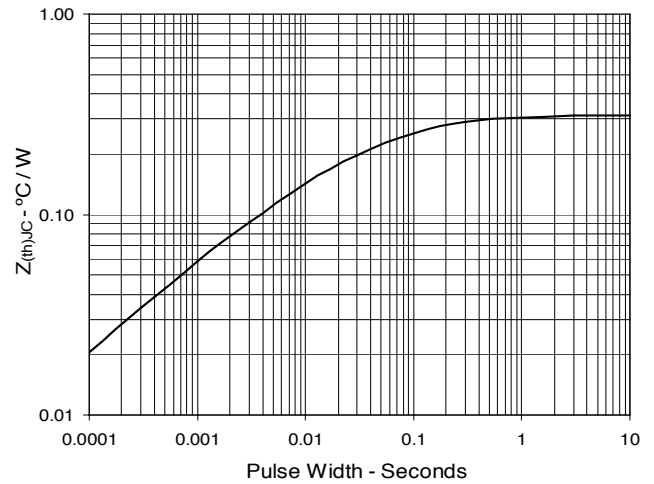


Fig. 13. Resistive Turn-on Rise Time vs. Junction Temperature

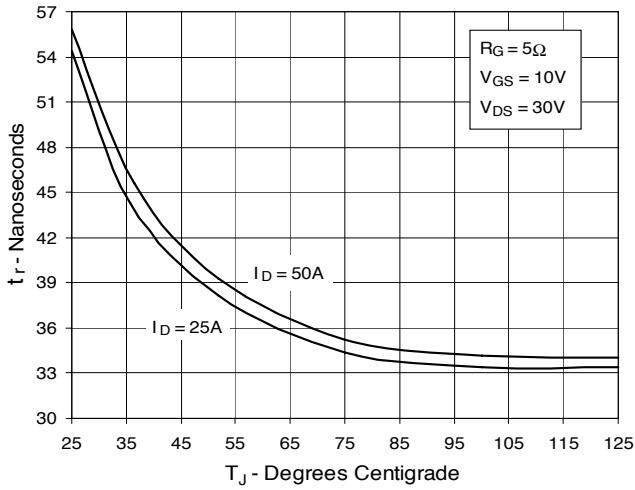


Fig. 14. Resistive Turn-on Rise Time vs. Drain Current

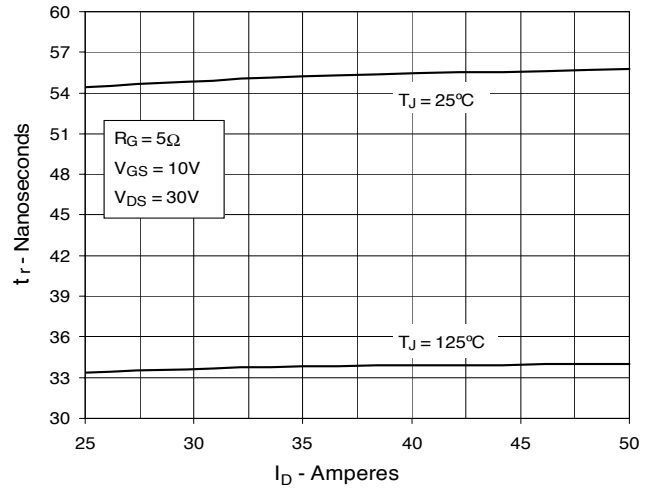


Fig. 15. Resistive Turn-on Switching Times vs. Gate Resistance

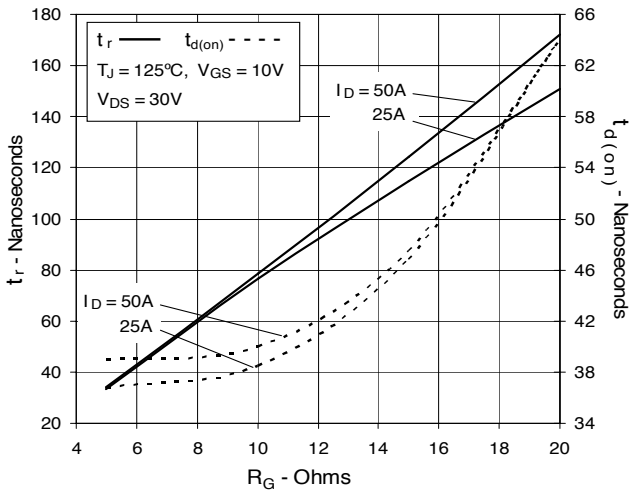


Fig. 16. Resistive Turn-off Switching Times vs. Junction Temperature

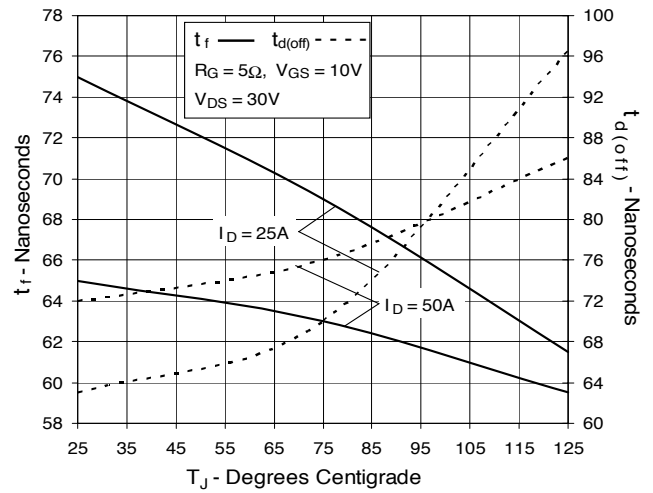


Fig. 17. Resistive Turn-off Switching Times vs. Drain Current

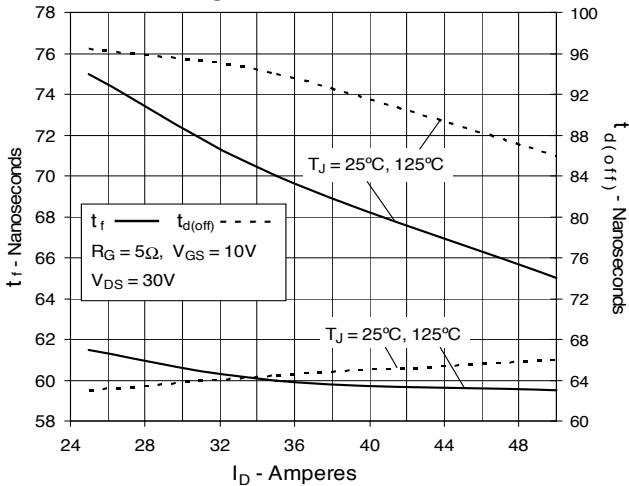
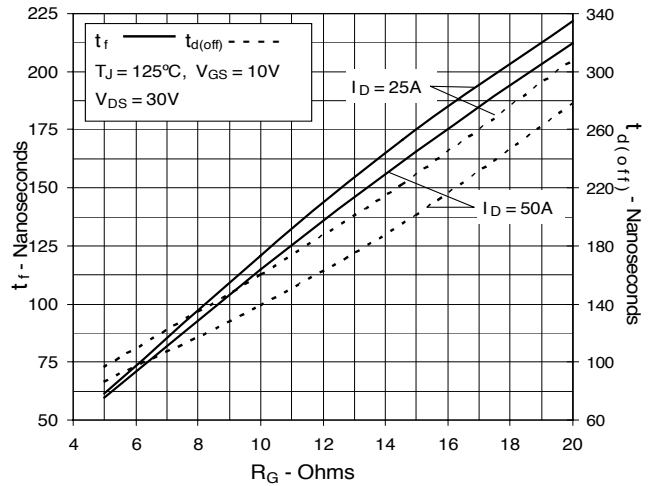


Fig. 18. Resistive Turn-off Switching Times vs. Gate Resistance









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