

IXYS HIGH CURRENT MOSIGBT ADVANCE DATA SHEET*		IXGH60N50, 60 T-39-15				
MAXIMUM RATINGS						
Parameter	Sym.	IXGH60N50,50A	IXGH60N60,60A Unit			
Collector-Emitter Voltage (1)	V _{CES}	500	600 V _{dc}			
Collector-Gate Voltage (R _{GE} =1.0MΩ) (1)	V _{CGR}	500	600 V _{dc}			
Gate-Emitter Voltage Continuous	V _{GE}		±20 V _{dc}			
Gate-Emitter Voltage Transient	V _{GEM}		±30 V			
Collector Current Continuous (T _c = 25 °C)	I _c	75	A _{dc}			
Collector Current Continuous (T _c = 90 °C)	I _c	60	A _{dc}			
Collector Current Pulsed (3)	I _{CM}	200	A			
Total Power Dissipation	P _D	310	W			
Power Dissipation Derating > 25 °C		2.5	W/°C			
Operating and Storage Temperature	T _J & T _{stg}	-65 to +150 °C				
Thermal Resistance	R _{thJC}	0.4	°C/W			
Max. Lead Temp. for Soldering	T _L	300 (1.6 mm from case for 10 sec.) °C				
60 Amps, 500-600 Volts TO-247						
 <p>G = Gate C = Collector E = Emitter</p>						
ELECTRICAL CHARACTERISTICS T _c = 25 °C unless otherwise specified						
Parameter	Type	Min.	Typ.	Max.	Units	Test Conditions
V _{(BR)CES} Collector-Emitter Breakdown Voltage	60N50,50A 60N60,60A	500 600	—	—	V	V _{GE} = 0 V I _c = 250 μA
V _{GE(th)} Gate Threshold Voltage	ALL	2.5	—	5.0	V	V _{CE} = V _{GE} , I _c = 250 μA
I _{GES} Gate-Emitter Leakage	ALL	—	—	100	nA	V _{GE} = ±20 V _{DC}
I _{CES} Zero Gate Voltage Collector Current	ALL	—	—	200 1000	μA μA	V _{CE} = Rated V _{(BR)CES} x 0.8, V _{GE} = 0 V V _{CE} = Rated V _{(BR)CES} x 0.8, V _{GE} = 0 V, T _c = 125 °C
V _{CE(sat)} Collector-Emitter Saturation Voltage	60N50,60 60N50A,60A	—	—	2.5 3.0	V	V _{GE} = 15 V, I _c = 60A
g _{fs} Forward Transconductance (2)	ALL	15	30	—	S	V _{CE} = 10 V, I _c = 30A
C _{iss} Input Capacitance	ALL	—	4800	5500	pF	V _{GE} = 0 V, V _{CE} = 25 V, f = 1.0MHz
C _{oss} Output Capacitance	ALL	—	400	500	pF	
C _{rss} Reverse Transfer Capacitance	ALL	—	200	250	pF	
SWITCHING CHARACTERISTICS						
t _{d(on)} Turn-On Delay Time	ALL	—	—	200	nS	Resistive Load, T _J = 125 °C (4) I _c = 60A, V _{CE} = Rated V _{(BR)CES} x 0.8 V _{GE} = 15 V R _G = 10 Ω
t _r Current Rise Time	ALL	—	—	200	nS	
t _{d(off)} Turn-Off Delay Time (4)	ALL	—	—	1.0	μS	
t _f Current Fall Time (4)	60N50,60 60N50A,60A	—	—	2.0 0.5	μS μS	
t _{d(off)} Turn-Off Delay Time (4)	ALL	—	—	1.0	μS	Inductive Load, T _J = 125 °C (4) L = 300 μH, I _c = 60A V _{CE} (Clamp) = Rated V _{(BR)CES} x 0.8 V _{GE} = 15 V, R _G = 10 Ω
t _f Current Fall Time (4)	60N50,60 60N50A,60A	—	—	2.0 0.5	μS μS	
<p>(1) T_J = 25 °C to 150 °C (2) Pulse Test: Pulse width ≤ 300 μS, duty cycle ≤ 2% (3) Repetitive Rating: Pulse width limited by max. junction temperature (4) Switching times may increase for V_{CE} (Clamp) > 0.8 x V_{(BR)CES} or T_J < 60 °C</p> <p>*The data supplied herein reflects the Design Technical Objective Specification. The subject products are in Product Development. IXYS reserves the right to change limits, test conditions, and dimensions without notice.</p>						
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