ANGM150U075ST

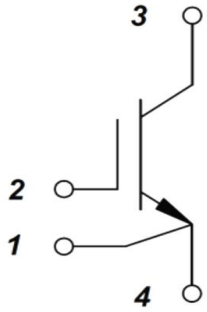
750V 150A IGBT SOT-227 Module

PRODUCT FEATURES

- ☐ IGBT^3 Chip(Trench+Field Stop technology)
- ☐ Low switching losses
- ☐ Low saturation voltage and positive temperature coefficient
- ☐ Fast switching and short tail current
- ☐ Free wheeling diodes with fast and soft reverse recovery
- ☐ Popular SOT-227 Package

APPLICATIONS

- ☐ AC motor control
- ☐ Motion/servo control
- ☐ Induction Heating
- ☐ UPS Systems
- ☐ industrial welding machine



IGBT

ABSOLUTE MAXIMUM RATINGS(T_C = 25 °C *unless otherwise specified)*

Symbol	Parameter/ Test Conditions		Values	Unit
V_{CES}	Collector Emitter Voltage	T_J= 25 °C	750	V
V_{GES}	Gate Emitter Voltage		±20	
I_C	DC Collector Current	T_C= 25 °C, T_{Jmax}= 175 °C	200	A
		T_C= 95 °C, T_{Jmax}= 175 °C	150	
I_{CM}	Repetitive Peak Collector Current	tp= 10 μs	300	
P_{tot}	Power Dissipation Per IGBT	T_C= 25 °C, T_{Jmax}= 175 °C	600	W

MODULE CHARACTERISTICS(T_C = 25 °C *unless otherwise specified)*

Symbol	Parameter/ Test Conditions		Values	Unit
T_{Jmax}	Max. Junction Temperature		175	°C
T_{Jop}	Operating Temperature		-40~150	
T_{stg}	Storage Temperature		-40~125	
V_{isol}	Isolation Breakdown Voltage	AC, 50Hz(R.M.S), t=1minute	3000	V
Torque	to heatsink	Recommended （M4）	0.7~1.1	Nm
	to terminal	Recommended （M4）	0.7~1.1	Nm
Weight			33	g

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ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise specified)

Symbol	Parameter/ Test Conditions			Min.	Typ.	Max.	Unit
$V_{GE(th)}$	Gate Emitter Threshold Voltage	$V_{CE}=V_{GE}$, I_C=6mA		5.0	6.0	6.5	V
$V_{CE(sat)}$	Collector Emitter Saturation Voltage	I_C=100A, V_{GE}=15V, T_J=25°C			1.17	1.5	
		I_C=150A, V_{GE}=15V, T_J=25°C			1.34		
		I_C=200A, V_{GE}=15V, T_J=25°C			1.5		
I_{CES}	Collector Leakage Current	V_{CE}=1200V, V_{GE}=0V, T_J=25°C				1	mA
		V_{CE}=1200V, V_{GE}=0V, T_J=150°C				2	mA
I_{GES}	Gate Leakage Current	V_{CE}=0V, V_{GE}=±20V, T_J=25°C				±300	nA
R_{gint}	Integrated Gate Resistor				9		Ω
Q_g	Gate Charge	V_{CE}=600V, I_C=150A, V_{GE}=15V			0.75		μC
C_{ies}	Input Capacitance	V_{CE}=25V, V_{GE}=0V, f=1MHz			6.5		nF
C_{res}	Reverse Transfer Capacitance				40		pF
$t_{d(on)}$	Turn on Delay Time	V_{CC}=600V, I_C=150A, R_G=2.0Ω, V_{GE}=±15V, Inductive Load	T_J=25°C		90		ns
			T_J=150°C		755		ns
t_r	Rise Time		T_J=25°C		48		ns
			T_J=150°C		120		ns
$t_{d(off)}$	Turn off Delay Time	V_{CC}=600V, I_C=150A, R_G=2.0Ω, V_{GE}=±15V, Inductive Load	T_J=25°C		350		ns
			T_J=150°C		1121		ns
t_f	Fall Time		T_J=25°C		20		ns
			T_J=150°C		60.8		ns
E_{on}	Turn on Energy	V_{CC}=600V, I_C=150A, R_G=2.0Ω, V_{GE}=±15V, Inductive Load	T_J=25°C		8.5		mJ
			T_J=150°C		13.2		mJ
E_{off}	Turn off Energy		T_J=25°C		3.1		mJ
			T_J=150°C		7.28		mJ
I_{SC}	Short Circuit Current	tpsc≤10μS, V_{GE}=15V, T_J=150°C, V_{CC}=800V			500		A
R_{thJC}	Junction to Case Thermal Resistance (Per IGBT)					0.2	K /W

IGBT Typical Performance

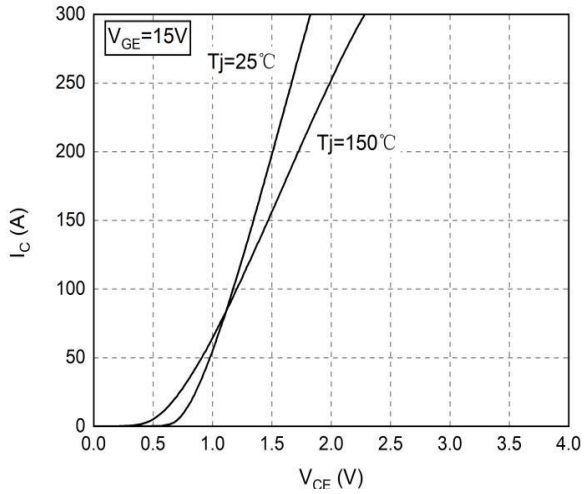


Figure1 TypicalOutputCharacteristicsIGBT

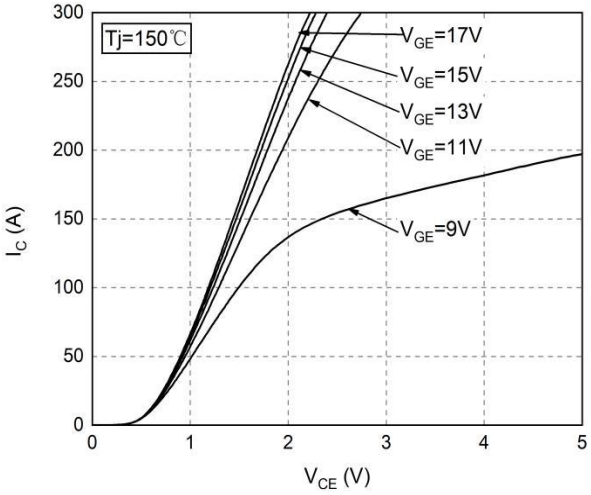


Figure2 TypicalOutputCharacteristicsIGBT

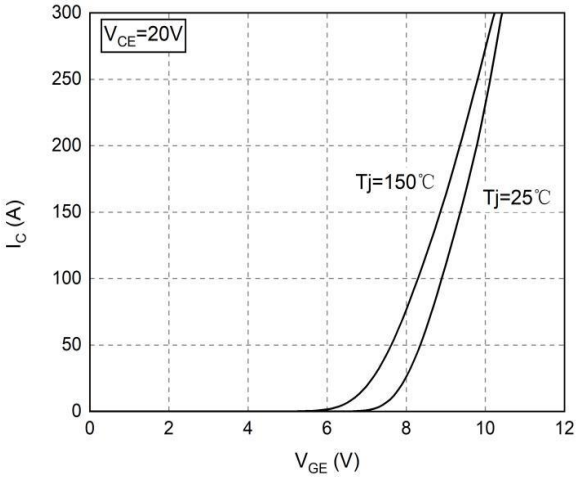


Figure3 TypicalTransferCharacteristicsIGBT

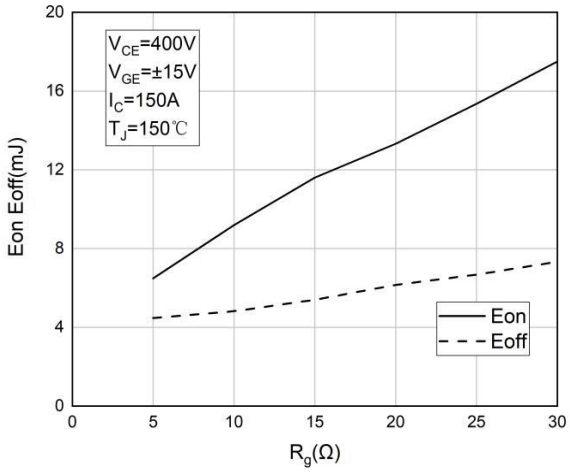


Figure4 SwitchingEnergyvsGateResistorIGBT

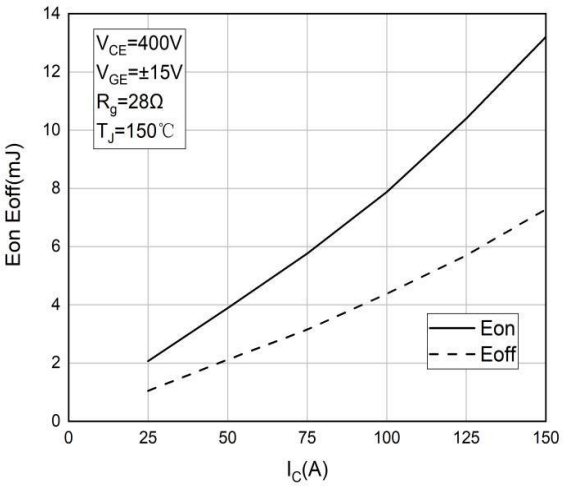


Figure5 SwitchingEnergyvsCollectorCurrentIGBT

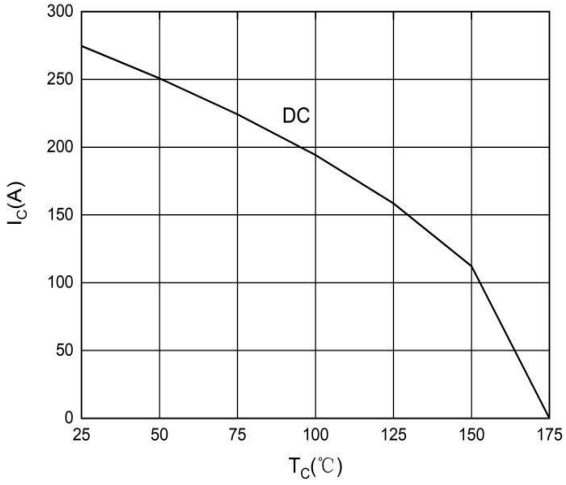


Figure6 CollectorCurrentvsCasetemperatureIGBT

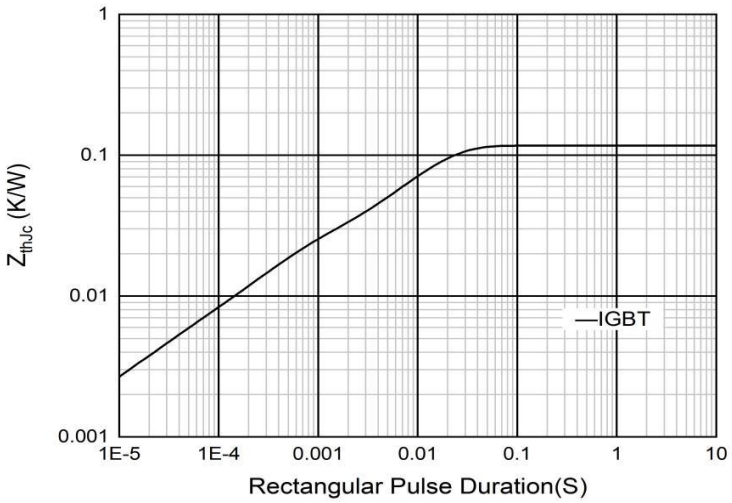
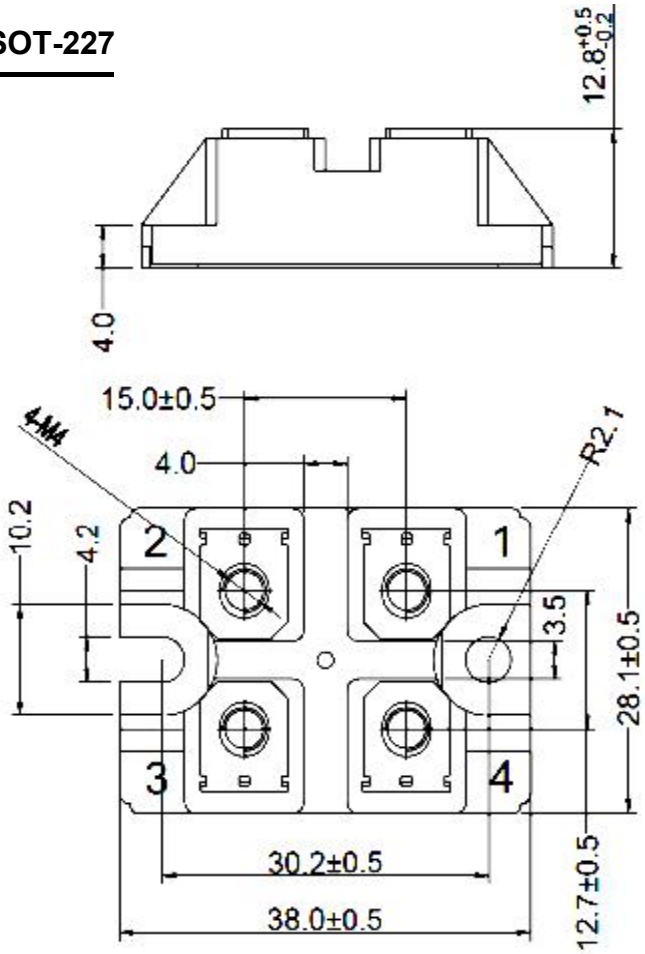


Figure7 TransientThermalImpedanceofIGBT

Package Dimensions: SOT-227



Dimensions in (mm)
Figure 9. Package Outline