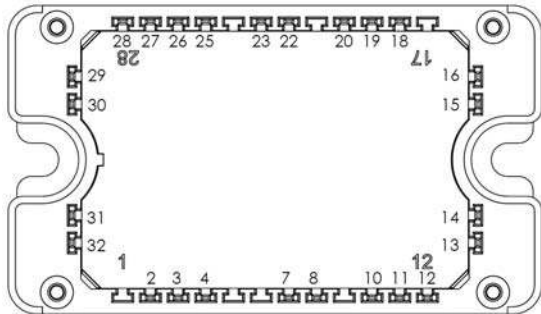
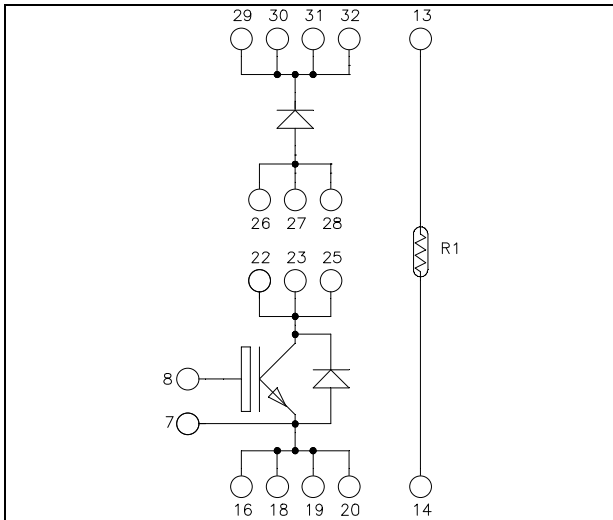


**Boost chopper
Trench + Field Stop IGBT3
Power Module**

**$V_{CES} = 600V$
 $I_C = 200A @ T_c = 100^\circ C$**



Pins 29/30/31/32 must be shorted together

Pins 26/27/28/22/23/25 must be shorted together
to achieve a phase leg

Pins 16/18/19/20 must be shorted together

Application

- AC and DC motor control
- Switched Mode Power Supplies
- Power Factor Correction

Features

- **Trench + Field Stop IGBT3**
 - Low voltage drop
 - Low tail current
 - Switching frequency up to 20 kHz
 - Low leakage current
 - RBSOA and SCSOA rated
- Very low stray inductance
- Kelvin emitter for easy drive
- Internal thermistor for temperature monitoring
- AlN substrate for improved thermal performance

Benefits

- Direct mounting to heatsink (isolated package)
- Low junction to case thermal resistance
- Solderable terminals both for power and signal for easy PCB mounting
- Low profile
- RoHS Compliant

All ratings @ $T_j = 25^\circ C$ unless otherwise specified

Absolute maximum ratings

Symbol	Parameter	Max ratings	Unit
V_{CES}	Collector - Emitter Voltage	600	V
I_C	Continuous Collector Current	$T_c = 25^\circ C$	290
		$T_c = 100^\circ C$	200
I_{CM}	Pulsed Collector Current	$T_c = 25^\circ C$	400
V_{GE}	Gate - Emitter Voltage	± 20	V
P_D	Power Dissipation	$T_c = 25^\circ C$	750
RBSOA	Reverse Bias Safe Operating Area	$T_j = 150^\circ C$	400A @ 550V

CAUTION: These Devices are sensitive to Electrostatic Discharge. Proper Handling Procedures Should Be Followed.

Electrical Characteristics

Symbol	Characteristic	Test Conditions	Min	Typ	Max	Unit
I _{CES}	Zero Gate Voltage Collector Current	V _{GE} = 0V, V _{CE} = 600V			250	μA
V _{CE(sat)}	Collector Emitter Saturation Voltage	V _{GE} = 15V I _C = 200A		T _j = 25°C 1.5 T _j = 150°C 1.7	1.9	V
V _{GE(th)}	Gate Threshold Voltage	V _{GE} = V _{CE} , I _C = 2 mA	5.0	5.8	6.5	V
I _{GES}	Gate – Emitter Leakage Current	V _{GE} = 20V, V _{CE} = 0V			400	nA

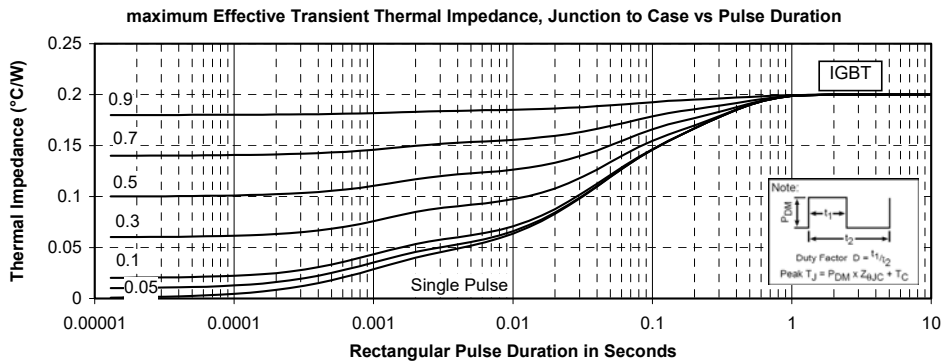
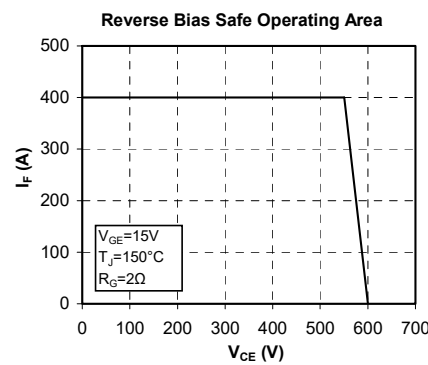
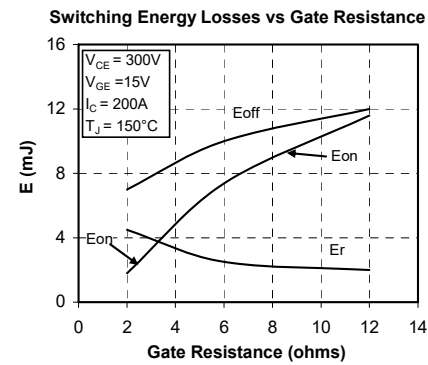
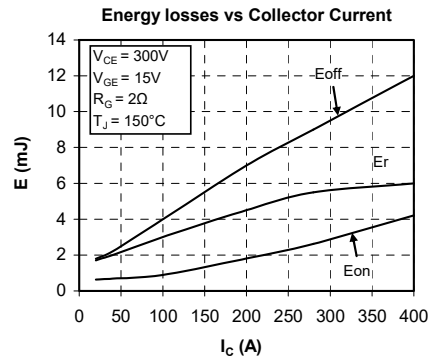
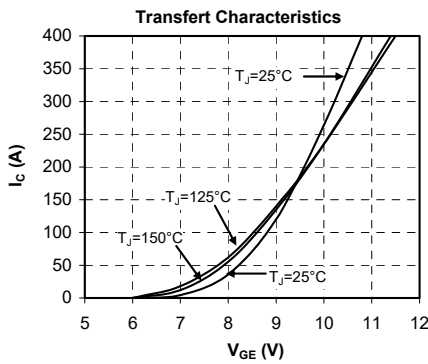
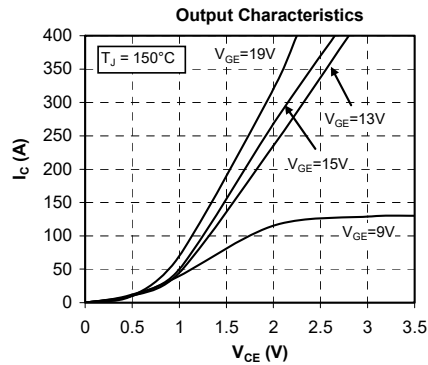
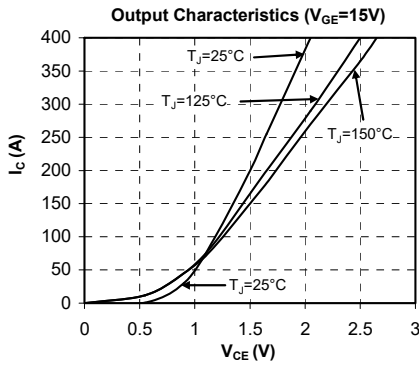
Dynamic Characteristics

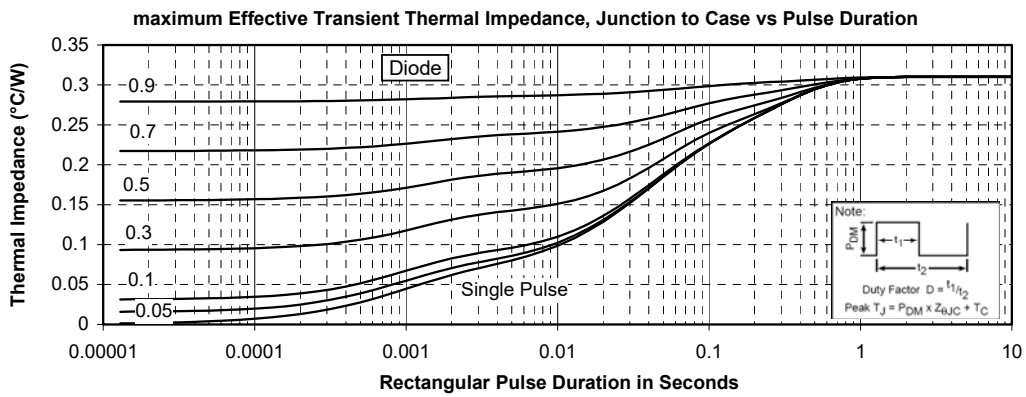
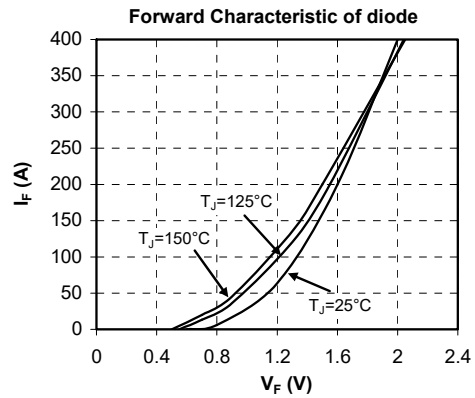
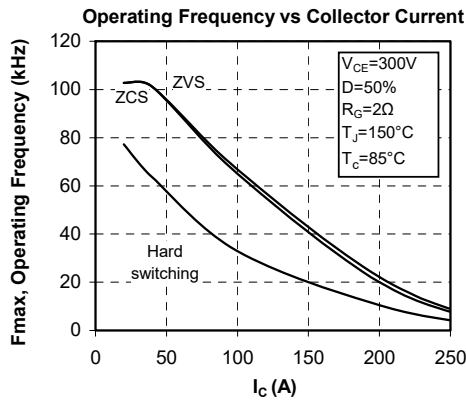
Symbol	Characteristic	Test Conditions	Min	Typ	Max	Unit
C _{ies}	Input Capacitance	V _{GE} = 0V V _{CE} = 25V f = 1MHz		12.3		nF
C _{oes}	Output Capacitance			0.8		
C _{res}	Reverse Transfer Capacitance			0.4		
Q _G	Gate charge	V _{GE} = ±15V ; V _{CE} = 300V I _C = 200A		2.2		μC
T _{d(on)}	Turn-on Delay Time	Inductive Switching (25°C) V _{GE} = ±15V V _{Bus} = 300V I _C = 200A R _G = 2Ω		115		ns
T _r	Rise Time			45		
T _{d(off)}	Turn-off Delay Time			225		
T _f	Fall Time			55		
T _{d(on)}	Turn-on Delay Time	Inductive Switching (150°C) V _{GE} = ±15V V _{Bus} = 300V I _C = 200A R _G = 2Ω		130		ns
T _r	Rise Time			50		
T _{d(off)}	Turn-off Delay Time			300		
T _f	Fall Time			70		
E _{on}	Turn on Energy	V _{GE} = ±15V V _{Bus} = 300V I _C = 200A	T _j = 25°C	1		mJ
			T _j = 150°C	1.8		
E _{off}	Turn off Energy	R _G = 2Ω	T _j = 25°C	5.7		mJ
			T _j = 150°C	7		
I _{sc}	Short Circuit data	V _{GE} ≤ 15V ; V _{Bus} = 360V t _p ≤ 6μs ; T _j = 150°C		1000		A
R _{thJC}	Junction to Case Thermal Resistance				0.20	°C/W

Chopper diode ratings and characteristics

Symbol	Characteristic	Test Conditions	Min	Typ	Max	Unit
V _{RRM}	Peak Repetitive Reverse Voltage				600	V
I _{RM}	Reverse Leakage Current	V _R = 600V			250	μA
I _F	DC Forward Current	T _c = 80°C		200		A
V _F	Diode Forward Voltage	I _F = 200A V _{GE} = 0V	T _j = 25°C	1.6	2	V
			T _j = 150°C	1.5		
t _{rr}	Reverse Recovery Time	I _F = 200A V _R = 300V di/dt = 2800A/μs	T _j = 25°C	125		ns
			T _j = 150°C	220		
Q _{rr}	Reverse Recovery Charge		T _j = 25°C	9		μC
			T _j = 150°C	20		
Er	Reverse Recovery Energy	T _j = 25°C	2.2		mJ	
		T _j = 150°C	4.8			
R _{thJC}	Junction to Case Thermal Resistance				0.31	°C/W

Typical Performance Curve





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