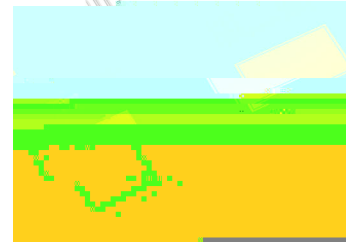


Automotive 1200 V, 450 A Dual Side Cooling Half-Bridge Power Module VE-Trac™ Dual NVG450A120L5DSC



AHPM15-CEA
 CASE 100DD

Product Description

The NVG450A12 Side Cooling Integrated Chip Level Temperature & Current Sensor

MARKING DIAGRAM

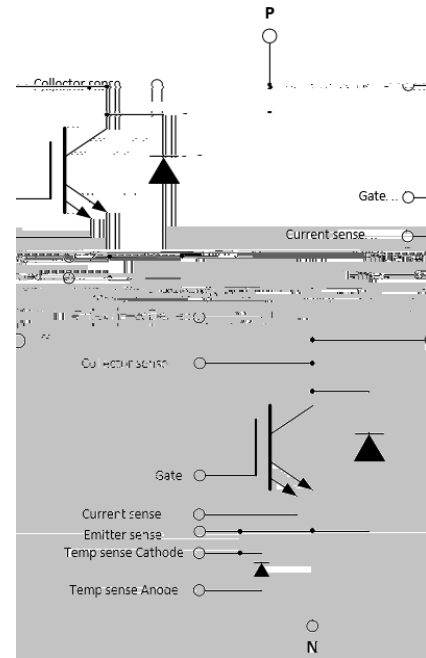


- ZZZ = Assembly Lot Code
- AT = Assembly & Test Site Code
- Y = Year
- WW = Work Week
- XXXX = Specific Device Code
- NNN = Serial Number

- $T_{vj\ max} = 175^{\circ}C$
- Low Stray Inductance
- Low Conduction and Switching Losses
- Automotive Grade
- 4.2 kV Isolated DBC Substrate
- This is a Pb-Free Device

Typical Applications

- Hybrid and Electric Vehicle Traction Inverter
- High Power DC-DC Converter



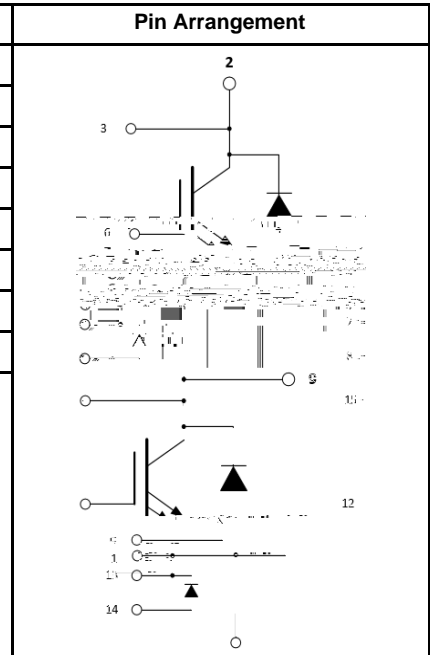
ORDERING INFORMATION

See detailed ordering and shipping information on page 9 of this data sheet.

VE-Trac™ Dual NVG450A120L5DSC

PIN DESCRIPTION

Pin No.	Pin	Description
1	N	Low Side Emitter
2	P	High Side Collector
3	H/S COLLECTOR SENSE	High Side Collector Sense
4	H/S CURRENT SENSE	High Side Current Sense
5	H/S EMITTER SENSE	High Side Emitter Sense
6	H/S GATE	High Side Gate
7	H/S TEMP SENSE (CATHODE)	High Side Temp sense Diode Cathode
8	H/S TEMP SENSE (ANODE)	High Side Temp sense Diode Anode
9	~	Phase Output
10	s2T.7nt Sense	



VE-Trac™ Dual NVG450A120L5DSC

ABSOLUTE MAXIMUM RATINGS ($T_{vj} = 25^{\circ}\text{C}$, unless otherwise specified)

Symbol	Parameter	Rating	Unit
IGBT			
V_{CES}	Collector to Emitter Voltage	1200	V
V_{GES}	Gate to Emitter Voltage	-15/+20	V
$V_{GES\ transient}$	Gate to Emitter Voltage, Limits under switching conditions	± 20	V
I_{CN}	Implemented Collector Current	450	A
$I_{C\ nom}$	Continuous DC Collector Current, $T_{vjmax} = 175^{\circ}\text{C}$, $T_F = 65^{\circ}\text{C}$, Ref. Heatsink		

VE-Trac™ Dual NVG450A120L5DSC

CHARACTERISTICS OF IGBT ($T_{vj} = 25^{\circ}\text{C}$, unless otherwise specified)

Parameters		Conditions	Min	Typ	Max	unit	
V_{CESAT}	Collector to Emitter Saturation Voltage (Terminal)	$V_{GE} = 15\text{ V}$, $I_C = 300\text{ A}$,	$T_{vj} = 25^{\circ}\text{C}$	–	1.38	1.6	V
			$T_{vj} = 150^{\circ}\text{C}$	–	1.50	–	
			$T_{vj} = 175^{\circ}\text{C}$	–	1.53	–	
		$V_{GE} = 15\text{ V}$, $I_C = 450\text{ A}$,	$T_{vj} = 25^{\circ}\text{C}$	–	1.59	–	
			$T_{vj} = 150^{\circ}\text{C}$	–	1.82	–	
			$T_{vj} = 175^{\circ}\text{C}$	–	1.87	–	
I_{CES}	Collector to Emitter Leakage Current	$V_{GE} = 0\text{ V}$, $V_{CE} = 1200\text{ V}$	$T_{vj} = 25^{\circ}\text{C}$	–	–	1	mA
			$T_{vj} = 175^{\circ}\text{C}$	–	7	–	
I_{GES}	Gate – Emitter Leakage Current	$V_{CE} = 0\text{ V}$, $V_{GE} = +20\text{ V}/-15\text{ V}$	–	–	± 400	nA	
V_{th}	Threshold Voltage	$V_{CE} = V_{GE}$, $I_C = 500\text{ mA}$	5.8	6.8	7.6	V	
Q_G	Total Gate Charge						

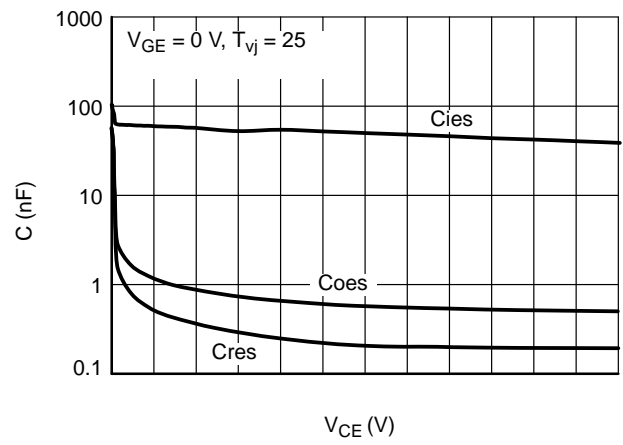
VE-Trac™ Dual NVG450A120L5DSC

CHARACTERISTICS OF INVERSE DIODE ($T_{vj} = 25^{\circ}\text{C}$, unless otherwise specified)

Parameters		Conditions	Min	Typ	Max	unit	
V_F	Diode Forward Voltage (Terminal)	$V_{GE} = 0\text{ V}, I_C = 300\text{ A},$	$T_{vj} = 25^{\circ}\text{C}$	–	1.58	1.82	V
			$T_{vj} = 150^{\circ}\text{C}$	–	1.56	–	
			$T_{vj} = 175^{\circ}\text{C}$	–	1.54	–	
		$V_{GE} = 0\text{ V}, I_C = 450\text{ A},$	$T_{vj} = 25^{\circ}\text{C}$	–	1.80	–	
			$T_{vj} = 150^{\circ}\text{C}$	–	1.81	–	
			$T_{vj} = 175^{\circ}\text{C}$	–	1.78	–	
E_{rr}	Reverse Recovery Energy						

VE-Trac™ Dual NVG450A120L5DSC

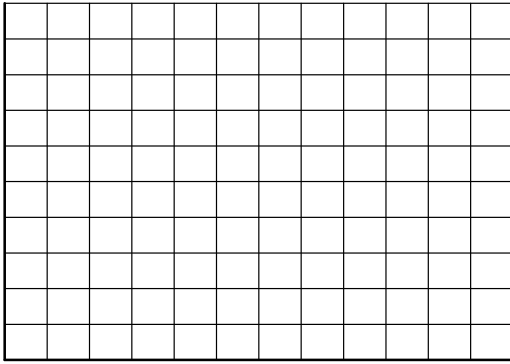
TYPICAL CHARACTERISTICS



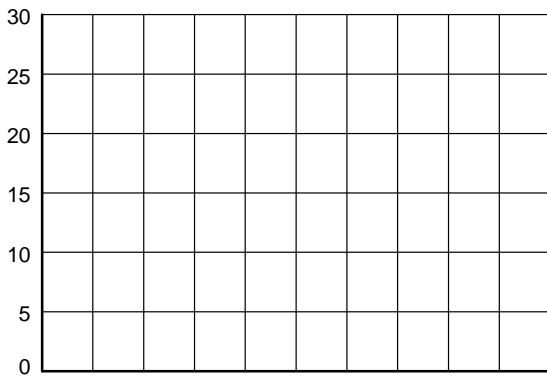
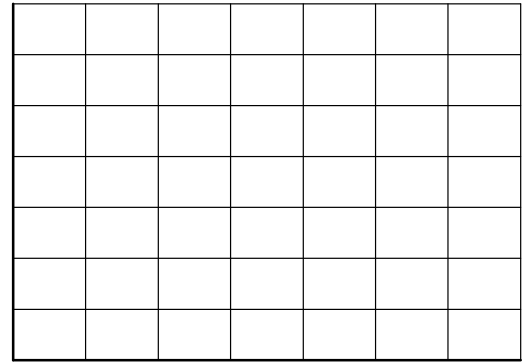
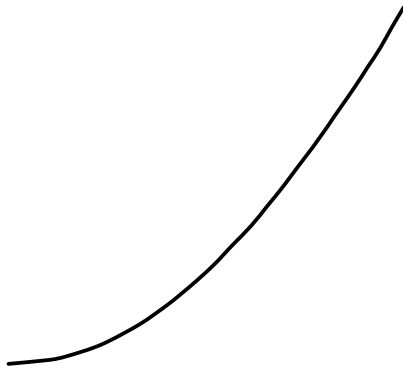
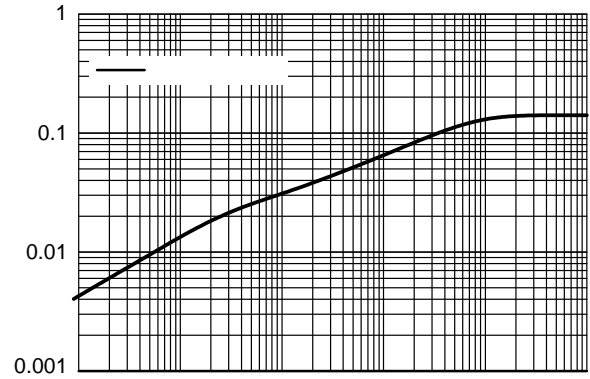
VE-Trac™

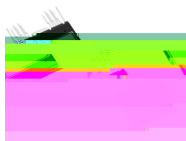
VE-Trac™ Dual NVG450A120L5DSC

TYPICAL CHARACTERISTICS



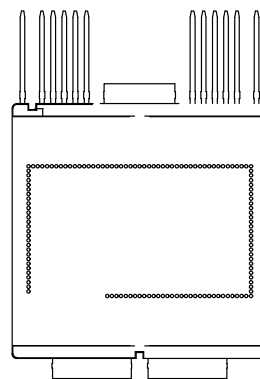
V_{CE} (V)





AHPM15-CEA
CASE 100DD
ISSUE B

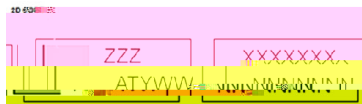
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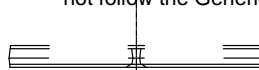


GENERIC MARKING DIAGRAM*



- ZZZ = Assembly Lot Code
- AT = Assembly & Test Site Code
- Y = Year
- WW = Work Week
- XXXX = Specific Device Code
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*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "▪", may or may not be present. Some products may not follow the Generic Marking.



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