

B
(7),
1200 → **1.67** → **40 A**
A **40** **120** →

V_{CES}	$V_{CE(sat)}$ TYP	$I_{c(sat)}$
1200 V	1.67 V	

Description

Using the novel field stop 7th generation IGBT technology in TO247-3 lead package, this device offers good performance with low on state voltage and low switching losses for both hard and soft switching topologies in automotive applications.

Features

- Extremely Efficient Trench with Field Stop Technology
- Maximum Junction Temperature $T_J = 175\text{ C}$
- Short Circuit Rated and Low Saturation Voltage
- Fast Switching and Tightened Parameter Distribution
- AEC-Q101 Qualified, PPAP Available Upon Request
- This Device is Pb-Free, Halogen Free/BFR Free and is RoHS Compliant

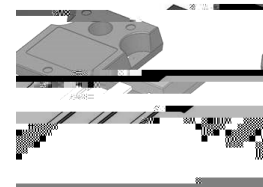
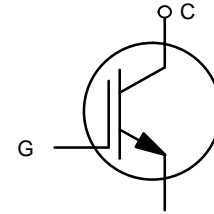
Applications

Automotive E-compressor / Automotive EV PTC Heater / OBC

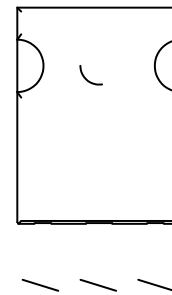
MAXIMUM RATINGS ($T_J = 25\text{ C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector-to-Emitter Voltage	V_{CE}	1200	V
Gate-to-Emitter Voltage	V_{GE}	20	
Transient Gate-to-Emitter Voltage		30	
Collector Current	I_C	$T_C = 25\text{ C}$	80 A
		$T_C = 100\text{ C}$	40
Power Dissipation	P_D	$T_C = 25\text{ C}$	468 W
		$T_C = 100\text{ C}$	234
Pulsed Collector Current		$T_C = 25\text{ C}$, $t_p = 10\text{ }\mu\text{s}$. (See Fig. 10)	

Note 1: Repetitive rating: Pulse width limited by max. junction temperature



TO-247-3LD
CASE 340CX

MARKING DIAGRAM

ORDERING INFORMATION

Device	Package	Shipping

AFGHL40T120RW-STD

ELECTRICAL CHARACTERISTICS ($T_J = 25\text{ C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
SWITCHING CHARACTERISTICS (Note: Si Diode Applied)						
Turn-On Delay Time	$t_{d(on)}$	$V_{CE} = 600\text{ V}, V_{GE} = 15\text{ V},$ $I_C = 20\text{ A}, R_G = 4.7\ \Omega,$ $T_J = 175\text{ C}$	–	40.5	–	ns
Turn-Off Delay Time	$t_{d(off)}$		–	256	–	
Rise Time	t_r		–	38.8	–	
Fall Time	t_f		–	282	–	
Turn-On Switching Loss	E_{on}		–	1.58	–	mJ
Turn-Off Switching Loss	E_{off}		–	1.8	–	
Total Switching Loss	E_{ts}		–	3.38	–	
Turn-On Delay Time	$t_{d(on)}$	$V_{CE} = 600\text{ V}, V_{GE} = 15\text{ V},$ $I_C = 40\text{ A}, R_G = 4.7\ \Omega,$ $T_J = 175\text{ C}$	–	46.8	–	ns
Turn-Off Delay Time	$t_{d(off)}$		–	199	–	
Rise Time	t_r		–	70.7	–	
Fall Time	t_f		–	167	–	
Turn-On Switching Loss	E_{on}		–	4.74	–	mJ
Turn-Off Switching Loss	E_{off}		–	2.19	–	
Total Switching Loss	E_{ts}		–	6.93	–	

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

AFGHL40T120RW-STD

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TYPICAL CHARACTERISTICS

Figure 7. Capacitance Characteristics

Figure 8. Gate Charge Characteristics

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