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With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

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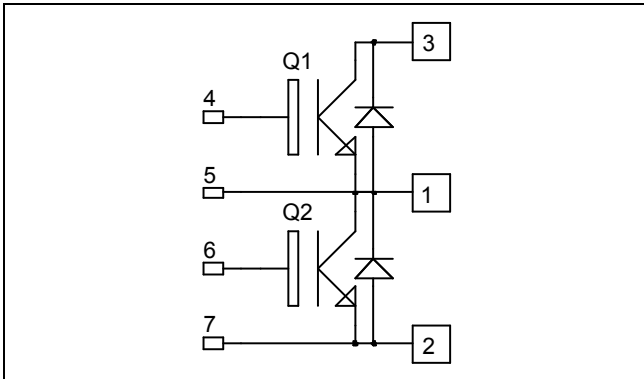
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*Phase leg
Trench + Field Stop IGBT3
Power Module*

**$V_{CES} = 600V$
 $I_C = 300A @ T_c = 80^\circ C$**


Application

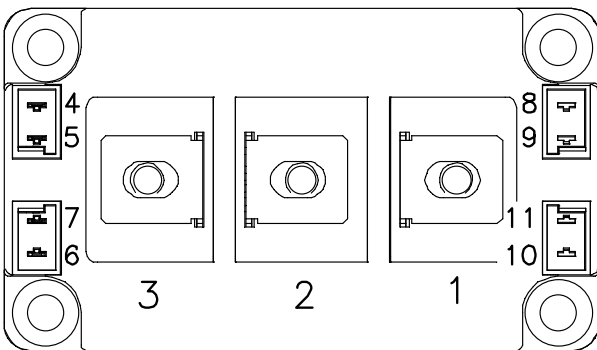
- Welding converters
- Switched Mode Power Supplies
- Uninterruptible Power Supplies
- Motor control

Features

- Trench + Field Stop IGBT3 Technology
 - Low voltage drop
 - Low tail current
 - Switching frequency up to 20 kHz
 - Soft recovery parallel diodes
 - Low diode VF
 - Low leakage current
 - RBSOA and SCSOA rated
- Kelvin emitter for easy drive
- High level of integration
- M6 power connectors

Benefits

- Stable temperature behavior
- Very rugged
- Direct mounting to heatsink (isolated package)
- Low junction to case thermal resistance
- Easy paralleling due to positive T_C of V_{CEsat}
- RoHS Compliant


Absolute maximum ratings

Symbol	Parameter	Max ratings	Unit
V_{CES}	Collector - Emitter Breakdown Voltage	600	V
I_C	Continuous Collector Current	$T_C = 25^\circ C$	400
		$T_C = 80^\circ C$	300
I_{CM}	Pulsed Collector Current	$T_C = 25^\circ C$	600
V_{GE}	Gate - Emitter Voltage	± 20	V
P_D	Maximum Power Dissipation	$T_C = 25^\circ C$	940
RBSOA	Reverse Bias Safe Operating Area	$T_j = 125^\circ C$	600A @ 520V

CAUTION: These Devices are sensitive to Electrostatic Discharge. Proper Handling Procedures Should Be Followed. See application note APT0502 on www.microsemi.com

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

Electrical Characteristics

Symbol	Characteristic	Test Conditions	Min	Typ	Max	Unit
I_{CES}	Zero Gate Voltage Collector Current	$V_{GE} = 0V, V_{CE} = 600V$			500	μA
$V_{CE(sat)}$	Collector Emitter saturation Voltage	$V_{GE} = 15V$ $I_C = 300A$		1.5 1.7	1.9	V
		$T_j = 25^\circ\text{C}$ $T_j = 150^\circ\text{C}$				
$V_{GE(th)}$	Gate Threshold Voltage	$V_{GE} = V_{CE}, I_C = 4.8\text{ mA}$	5.0	5.8	6.5	V
I_{GES}	Gate – Emitter Leakage Current	$V_{GE} = 20V, V_{CE} = 0V$			400	nA

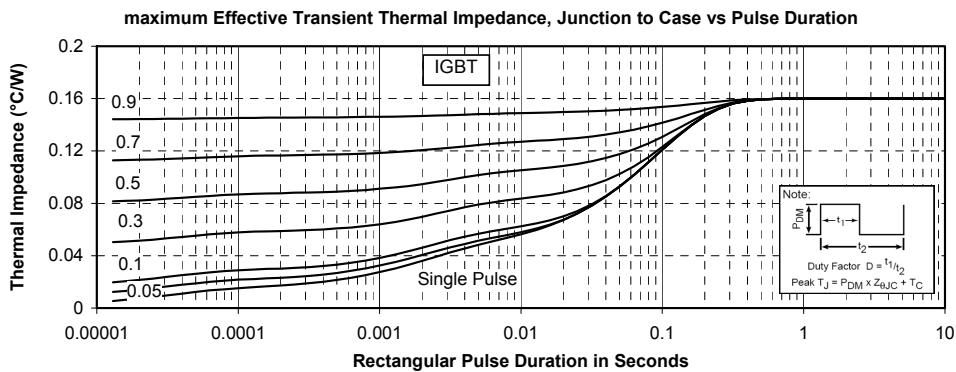
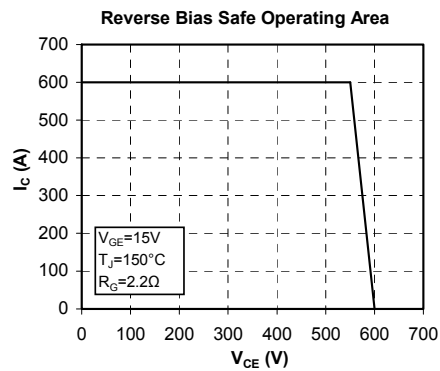
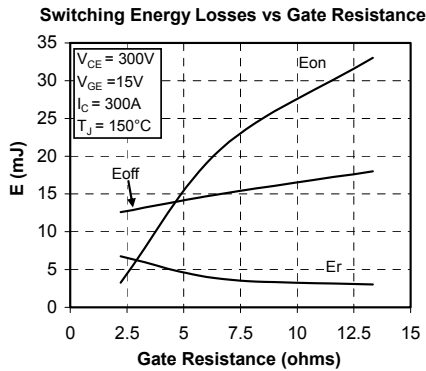
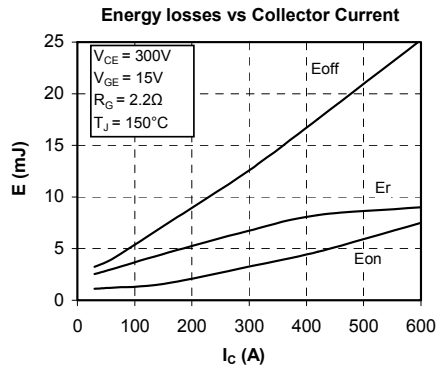
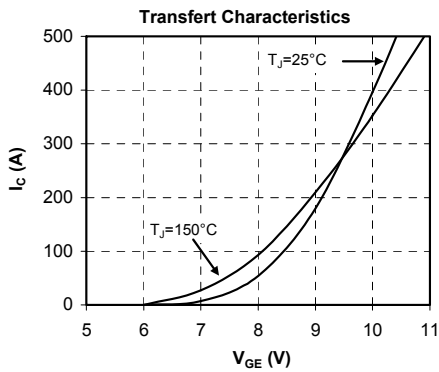
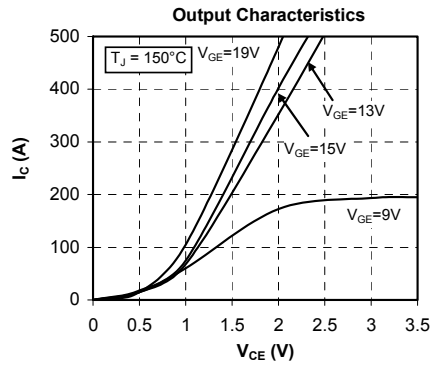
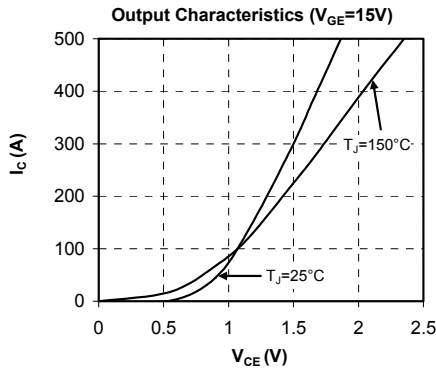
Dynamic Characteristics

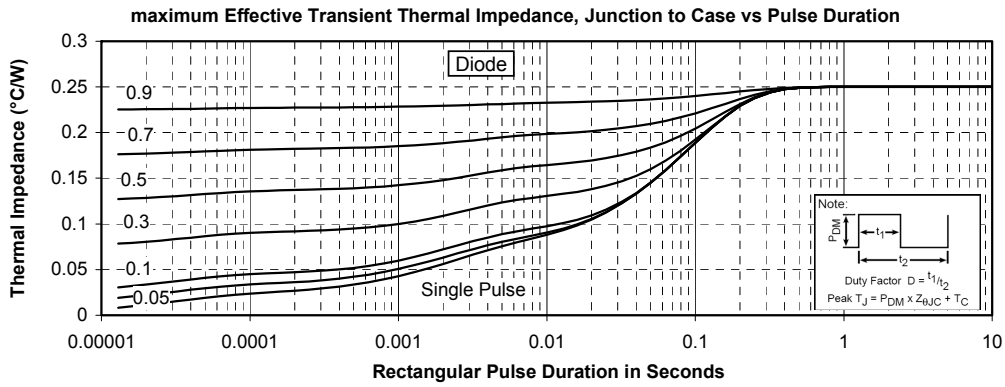
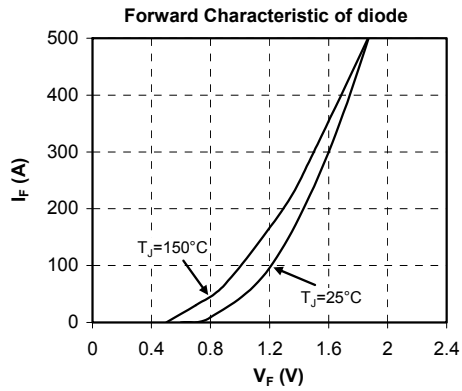
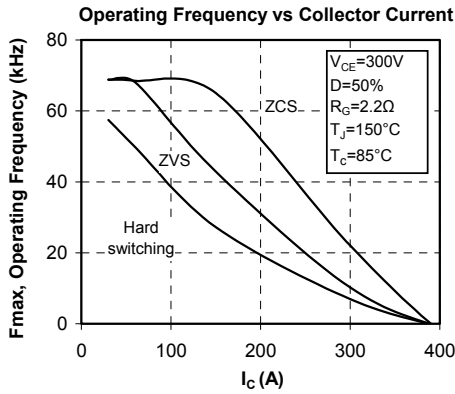
Symbol	Characteristic	Test Conditions	Min	Typ	Max	Unit
C_{ies}	Input Capacitance	$V_{GE} = 0V$		18.5		nF
C_{oes}	Output Capacitance	$V_{CE} = 25V$		1.2		
C_{res}	Reverse Transfer Capacitance	$f = 1\text{MHz}$		0.5		
Q_G	Gate charge	$V_{GE} = \pm 15V, I_C = 300A$ $V_{CE} = 300V$		3.2		μC
$T_{d(on)}$	Turn-on Delay Time	Inductive Switching (25°C) $V_{GE} = \pm 15V$ $V_{Bus} = 300V$ $I_C = 300A$ $R_G = 2.2\Omega$		110		ns
T_r	Rise Time			50		
$T_{d(off)}$	Turn-off Delay Time			490		
T_f	Fall Time			50		
$T_{d(on)}$	Turn-on Delay Time	Inductive Switching (150°C) $V_{GE} = \pm 15V$ $V_{Bus} = 300V$ $I_C = 300A$ $R_G = 2.2\Omega$		130		ns
T_r	Rise Time			60		
$T_{d(off)}$	Turn-off Delay Time			530		
T_f	Fall Time			70		
E_{on}	Turn on Energy	$V_{GE} = \pm 15V$ $V_{Bus} = 300V$	$T_j = 25^\circ\text{C}$	3.1		mJ
			$T_j = 150^\circ\text{C}$	3.3		
E_{off}	Turn off Energy	$I_C = 300A$ $R_G = 2.2\Omega$	$T_j = 25^\circ\text{C}$	12		mJ
			$T_j = 150^\circ\text{C}$	12.5		
I_{sc}	Short Circuit data	$V_{GE} \leq 15V; V_{Bus} = 360V$ $t_p \leq 6\mu\text{s}; T_j = 150^\circ\text{C}$		1500		A

Reverse diode ratings and characteristics

Symbol	Characteristic	Test Conditions	Min	Typ	Max	Unit
V_{RRM}	Maximum Peak Repetitive Reverse Voltage		600			V
I_{RRM}	Maximum Reverse Leakage Current	$V_R = 600V$			500 750	μA
		$T_j = 25^\circ\text{C}$ $T_j = 150^\circ\text{C}$				
I_F	DC Forward Current	$T_c = 80^\circ\text{C}$		300		A
V_F	Diode Forward Voltage	$I_F = 300A$ $V_{GE} = 0V$	$T_j = 25^\circ\text{C}$	1.6	2	V
			$T_j = 150^\circ\text{C}$	1.5		
t_{rr}	Reverse Recovery Time	$I_F = 300A$ $V_R = 300V$ $di/dt = 4800A/\mu\text{s}$	$T_j = 25^\circ\text{C}$	100		ns
			$T_j = 150^\circ\text{C}$	150		
Q_{rr}	Reverse Recovery Charge		$T_j = 25^\circ\text{C}$	14.4		μC
			$T_j = 150^\circ\text{C}$	30.4		
E_{rr}	Reverse Recovery Energy		$T_j = 25^\circ\text{C}$	3.4		mJ
			$T_j = 150^\circ\text{C}$	7.2		

Typical Performance Curve





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