

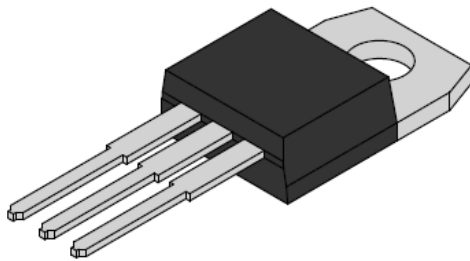
Features

- ◆ECMOS's Proprietary Trench IGTO Technology
- ◆Extremely Low $V_{CE,sat}$
- ◆Very Low E_{TS}
- ◆Integrated SuperBallast™ Technology for Safe, Simple Paralleling
- ◆Square Turn-Off SOA >4x Rated Current
- ◆Low turnoff voltage spike

Applications

- ◆UPS and Solar Inverters
- ◆Induction Heating
- ◆Motor Control
- ◆Power Factor Correction

Product Summary



Current (A)	Voltage (V)	$V_{CE,sat}$ (V)	Package	Marking
15	600	1.2	TO220	

Absolute Maximum Ratings

Stresses above those specified under Absolute Maximum Ratings may cause permanent damage to the device and/or affect device reliability. These are stress ratings only; functional operation of the device at these or any other conditions outside those indicated in the Specification Table is not implied.

Absolute maximum ratings apply individually only, not in combination. Unless otherwise specified, all voltages are referenced to GND.

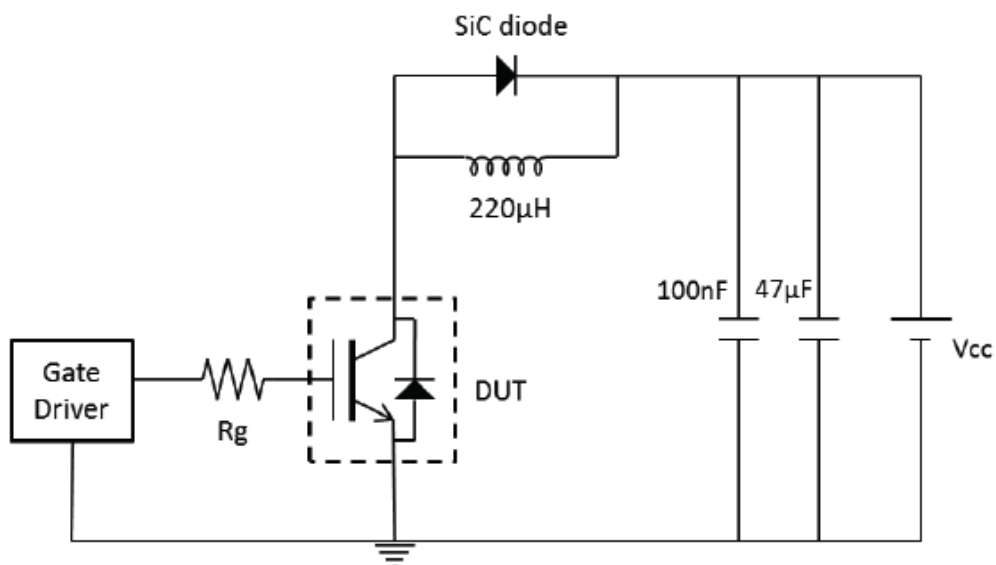
Symbol	Parameter	Min	Typ	Max	Unit
V_{CE}	Collector-to-Emitter Voltage			600	V
I_{CE}	DC Collector Current				
	TC = 25°C			30	A
	TC = 100°C			15	A
V_{GE}	Gate-to-Emitter Voltage	-20		20	V
T_J	Operating Junction Temperature	-40		150	°C
T_{STG}	Storage Temperature	-55		150	°C

Electrical Specifications

Typical values are at $T_J=25^{\circ}\text{C}$, unless otherwise specified. All limits at temperature extremes are guaranteed via correlation using standard statistical quality control (SQC).

Symbol	Parameter	Min	Typ	Max	Unit
$V_{BR,CES}$	Collector-to-Emitter Breakdown Voltage				
	$V_{GE}=0\text{V}, I_C=250\mu\text{A}$	600.0			V
$V_{CE,SAT}$	Collector-to-Emitter Saturation Voltage				
	$I_C=10\text{A}, V_{GE}=15\text{V}$		1.38		V
	$I_C=10\text{A}, V_{GE}=15\text{V}, T_J=150^{\circ}\text{C}$		1.2		V
	$I_C=20\text{A}, V_{GE}=15\text{V}$		1.73		V
V_{GE}	Gate Threshold Voltage				
	$V_{CE}=V_{GE}, I_C=250\mu\text{A}$		3.8	5.4	V
I_{CES}	Collector Leakage Current				
	$V_{GE}=0\text{V}, V_{CE}=600\text{V}$		0.1	10.0	μA
	$V_{GE}=0\text{V}, V_{CE}=600\text{V}, T_J=150^{\circ}\text{C}$		1000.0		μA
I_{CES}	Gate Leakage Current				
	$V_{GE}=20\text{V}, V_{CE}=0\text{V}$			100.0	nA
C_{IES}	Gate Emitter Capacitance				
	$V_{GE}=0\text{V}, V_{CE}=25\text{V}, f=1\text{MHz}$		1750.0		pF
C_{OES}	Output Capacitance				
	$V_{GE}=0\text{V}, V_{CE}=25\text{V}, f=1\text{MHz}$		11.0		pF
C_{RES}	Reverse Transfer Capacitance				
	$V_{GE}=0\text{V}, V_{CE}=25\text{V}, f=1\text{MHz}$		9.0		pF

Inductive Load Test Circuit



**Switching Characteristics**I_C=10A, V_{CC}=400V, V_{GE}=15V, V_{CC}=400V, R_G=6Ω, Energy includes tail.

Symbol	Parameter	Min	Typ	Max	Unit
t _{d,ON}	Turn-on Delay Time		42.0		ns
t _r	Turn-on Rise Time		43.0		ns
t _{d,OFF}	Turn-off Delay Time		156.0		ns
t _f	Turn-off Fall Time		85.0		ns
E _{ON}	Turn-on Switching Loss		0.13		mJ
E _{OFF}	Turn-off Switching Loss		0.18		mJ
E _{TS}	Total Switching Loss		0.31		mJ

T_J=100°C, I_C=10A, V_{CC}=400V, V_{GE}=15V, V_{CC}=400V, R_G=6Ω, Energy includes tail.

Symbol	Parameter	Min	Typ	Max	Unit
t _{d,ON}	Turn-on Delay Time		42.0		ns
t _r	Turn-on Rise Time		42.0		ns
t _{d,OFF}	Turn-off Delay Time		237.0		ns
t _f	Turn-off Fall Time		132.0		ns
E _{ON}	Turn-on Switching Loss		0.13		mJ
E _{OFF}	Turn-off Switching Loss		0.39		mJ
E _{TS}	Total Switching Loss		0.52		mJ

T_J=150°C, I_C=10A, V_{CC}=400V, V_{GE}=15V, V_{CC}=400V, R_G=6Ω, Energy includes tail.

Symbol	Parameter	Min	Typ	Max	Unit
t _{d,ON}	Turn-on Delay Time		44.0		ns
t _r	Turn-on Rise Time		43.0		ns
t _{d,OFF}	Turn-off Delay Time		340.0		ns
t _f	Turn-off Fall Time		220.0		ns
E _{ON}	Turn-on Switching Loss		0.12		mJ
E _{OFF}	Turn-off Switching Loss		0.65		mJ
E _{TS}	Total Switching Loss		0.77		mJ

T_J=100°C, I_C=10A, V_{CC}=400V, V_{GE}=15V/-8V, V_{CC}=400V, R_G=6Ω, Energy includes tail.

Symbol	Parameter	Min	Typ	Max	Unit
t _{d,ON}	Turn-on Delay Time		40.0		ns
t _r	Turn-on Rise Time		43.0		ns
t _{d,OFF}	Turn-off Delay Time		174.0		ns
t _f	Turn-off Fall Time		88.0		ns
E _{ON}	Turn-on Switching Loss		0.12		mJ
E _{OFF}	Turn-off Switching Loss		0.28		mJ
E _{TS}	Total Switching Loss		0.4		mJ

Pin Configuration

Pin Number	Description
1	Gate
2	Collector
3	Emitter

Package Drawing

