

International
IR Rectifier

Ignition IGBT

IRGS14C40LPbF
IRGSL14C40LPbF
IRGB14C40LPbF

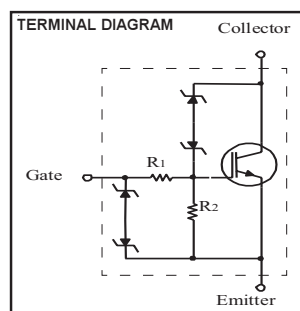
IGBT with on-chip Gate-Emmitter and Gate-Collector clamps

Features

- Most Rugged in Industry
- Logic-Level Gate Drive
- > 6KV ESD Gate Protection
- Low Saturation Voltage
- High Self-clamped Inductive Switching Energy
- Lead-Free

Description

The advanced IGBT process family includes a MOS gated, N-channel logic level device which is intended for coil-on-plug automotive ignition applications and small-engine ignition circuits. Unique features include on-chip active voltage clamps between the Gate-Emmitter and Gate-Collector which provide over voltage protection capability in ignition circuits.



- $BV_{CES} = 370V \text{ min, } 430V \text{ max}$
- $I_C @ T_C = 110^\circ C = 14A$
- $V_{CE(on)} \text{ typ} = 1.2V @ 7A @ 25^\circ C$
- $I_{L(min)} = 11.5A @ 25^\circ C, L = 4.7mH$

JEDEC TO-263AB



IRGS14C40L

JEDEC TO-262AA



IRGSL14C40L

JEDEC TO-220AB



IRGB14C40L

NOTE: IRGS14C40L is available in tape and reel. Add a suffix of TRR or TRL to the part number to determine the orientation of the device in the pocket, i.e, IRGS14C40LTRR or IRGS14C40LTRL.

Absolute Maximum Ratings

	Parameter	Max	Unit	Condition
V_{CES}	Collector-to-Emitter Voltage	Clamped	V	$R_G = 1K \text{ ohm}$
$I_C @ T_C = 25^\circ C$	Continuous Collector Current	20	A	$V_{GE} = 5V$
$I_C @ T_C = 110^\circ C$	Continuous Collector Current	14	A	$V_{GE} = 5V$
I_G	Continuous Gate Current	1	mA	
I_{GP}	Peak Gate Current	10	mA	$t_{PK} = 1ms, f = 100Hz$
V_{GE}	Gate-to-Emitter Voltage	Clamped	V	
$P_D @ T_C = 25^\circ C$	Maximum Power Dissipation	125	W	
$P_D @ T = 110^\circ C$	Maximum Power Dissipation	54	W	
T_J	Operating Junction and	- 40 to 175	$^\circ C$	
T_{STG}	Storage Temperature Range	- 40 to 175	$^\circ C$	
V_{ESD}	Electrostatic Voltage	6	KV	$C = 100pF, R = 1.5K \text{ ohm}$
I_L	Self-clamped Inductive Switching Current	11.5	A	$L = 4.7mH, T = 25^\circ C$

Thermal Resistance

	Parameter	Min	Typ	Max	Unit
R _{θJC}	Thermal Resistance, Junction-to-Case			1.2	°C/W
R _{θJA}	Thermal Resistance, Junction-to-Ambient			40	
	(PCB Mounted, Steady State)				
Z _{θJC}	Transient Thermal Impedance, Junction-to-Case (Fig.11)				