

Silicon NPT Planar IGBT

Description

The MLG25N135RK is use advanced NPT technology and integrated with Free Wheeling .The 1350V IGBT offers superior conduction and switching performances.

General Features

- ① 1350V Breakdown Voltage
- ② Low saturation voltage: $V_{CE(sat)}$, $t_{yp}=2.5V$
@ $I_C=25A$ and $T_C=25^\circ C$
- ③ FS Tench Technology, Positive temperature coefficient

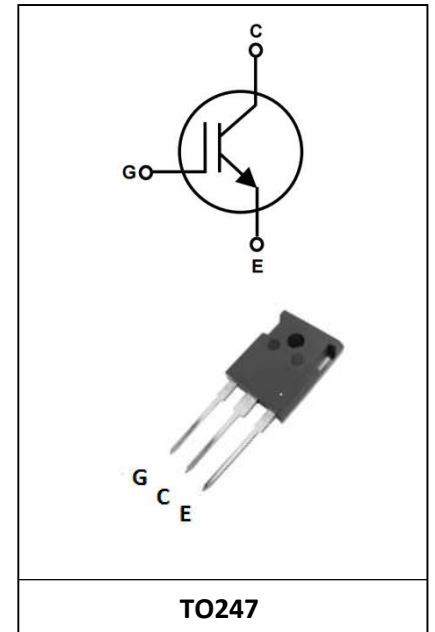
Application

- ① Solar Converters
- ② Welding Converters
- ③ UPS

Electrical Characteristics

@ $T_C=25^\circ C$ (unless otherwise specified)

Limited Parameters:



Symbol	Parameter	Value	Units
V_{CES}	Collector-Emitter Voltage	1350	V
V_{GES}	Gate-Emitter Voltage	+/-20	V
I_C	Collector Current	50	A
	Collector Current @ $T_C=100^\circ C$	25	A
I_{CM}	Pulsed Collector Current	75	A
P_D	Total Dissipation at $T_a=25^\circ C$	208	W
	Total Dissipation at @ $T_C=100^\circ C$	83	
T_j	Operating Junction and Storage Temperature Range	-55 to +175	$^\circ C$
T_L	Max Temperature For Soldering	265	$^\circ C$

Electrical Parameters:

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
V_{CES}	Collector-Emitter Voltage	$V_{GE}=0V, I_{CE}=250\mu A$	1350			V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$V_{GE}=15V, I_C=25A$		2.5	3.2	V
$V_{GE(th)}$	Gated Threshold Voltage	$V_{CE}=V_{GE}, I_C=1mA$	4.0	5.5	6.5	V
I_{CES}	Collector-Emitter Leakage Current	$V_{GE}=0V, V_{CE}=1350V$			1.0	μA
$I_{GES(F)}$	Gate to Emitter Forward Leakage	$V_{GE}=+20V$			100	nA
$I_{GES(R)}$	Gate to Emitter Reverse Leakage	$V_{GE}=-20V$			-100	nA
C_{ies}	Input Capacitance	$V_{GE}=0V,$ $V_{CE}=30V,$ $f=1.0MHz$		2370		pF
C_{oes}	Output Capacitance			59		pF
C_{res}	Reverse Transfer Capacitance			43		pF
Q_g	Total Gate Charge	$V_{CE}=960V$ $I_C=25A$ $V_{GE}=15V$		142		nC
Q_{ge}	Gate to Emitter Charge			23		nC
Q_{gc}	Gate to Collector Charge			75		nC

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
$t_{d(on)}$	Turn-on Delay Time	$V_{CE}=600V, I_C=25A$ $V_{GE}=15V, R_G=10\Omega$		34		nS
t_r	Rise Time			36		nS
$t_{d(off)}$	Turn-off Delay Time			198		nS
t_f	Fall Time			75		nS

Symbol	Paramter	Typ	MAX	Units
$R_{\theta JC}$	Thermal Resistance, Junction to case for IGBT	--	0.6	$^{\circ}C/W$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	--	40	$^{\circ}C/W$

Typical Performance Characteristics

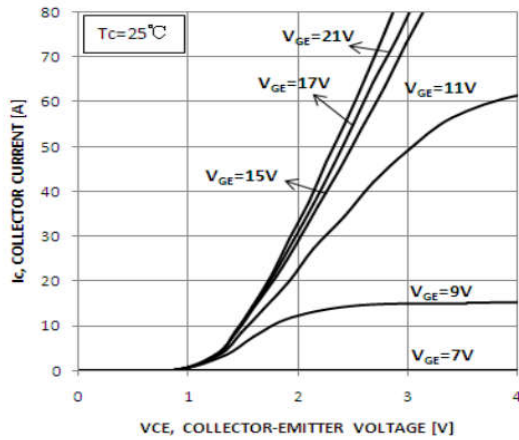


Figure 1. Typical Output Characteristics

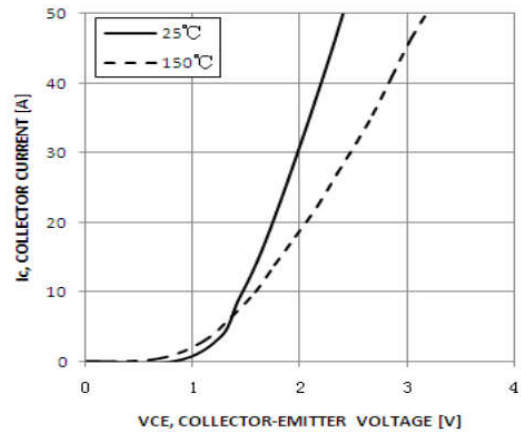


Figure 2. Typical Output Characteristics

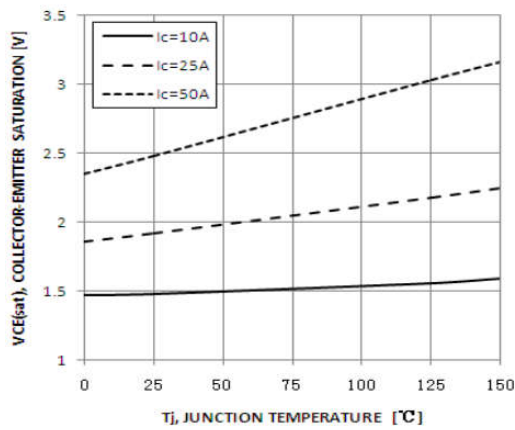


Figure 3. Typical Saturation Voltage vs. Junction Temperature

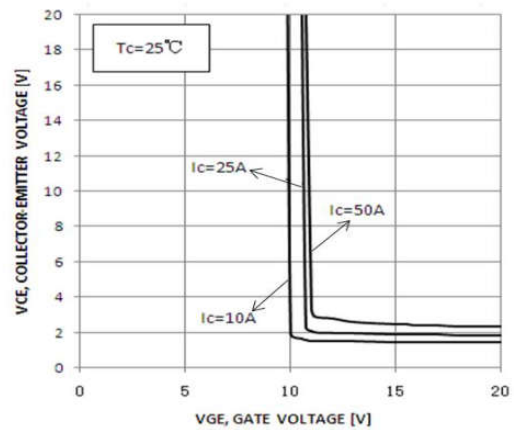


Figure 4. Typical Saturation Voltage vs. Gate-Emitter Voltage

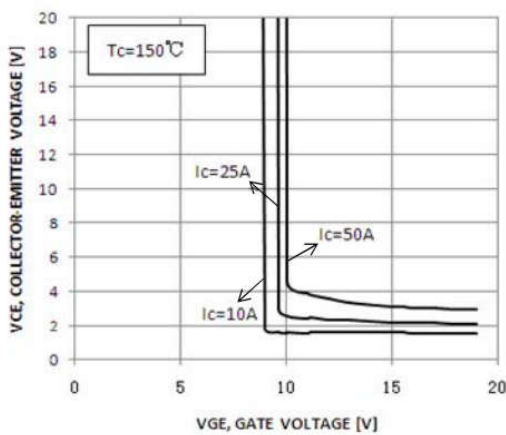


Figure 5. Typical Saturation Voltage vs. Gate-Emitter Voltage

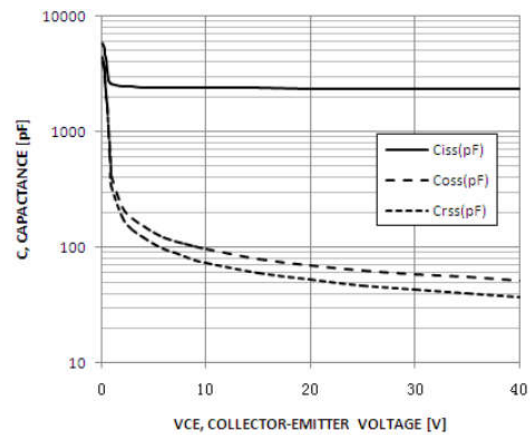


Figure 6. Typical Capacitance Characteristics

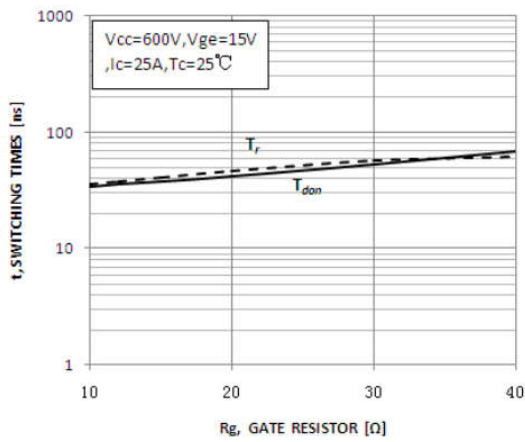


Figure 7. Typical Turn-On Characteristics vs. Gate Resistance

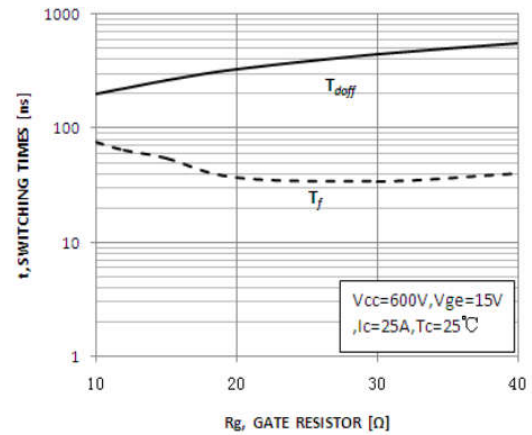


Figure 8. Typical Turn-Off Characteristics vs. Gate Resistance

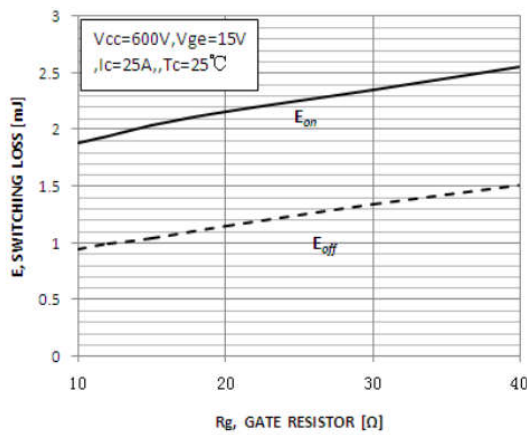


Figure 9. Typical Switching Losses vs. Gate Resistance

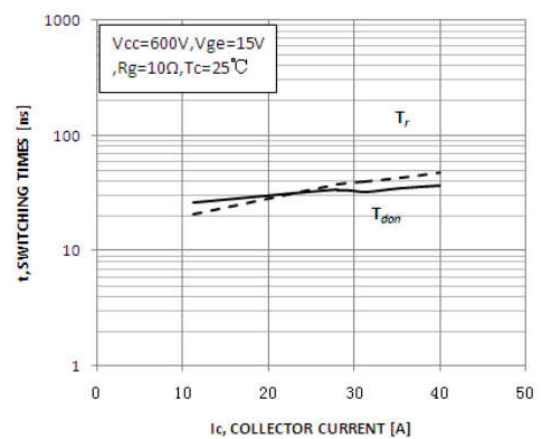


Figure 10. Typical Turn-On Characteristics vs. Collector Current

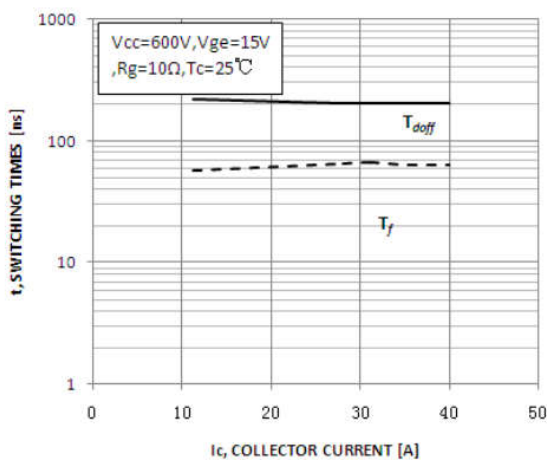


Figure 11. Typical Turn-Off Characteristics vs. Collector Current

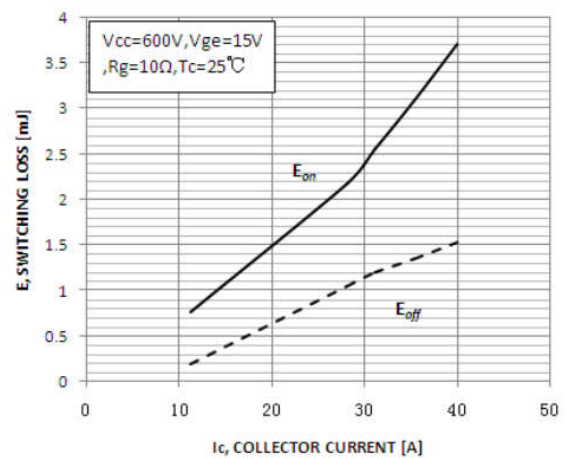


Figure 12. Typical Switching Losses vs. Collector Current

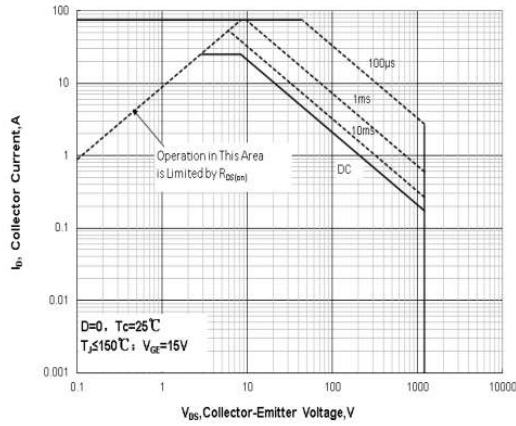


Figure 13. Typical IGBT Forward Safe Operating Area

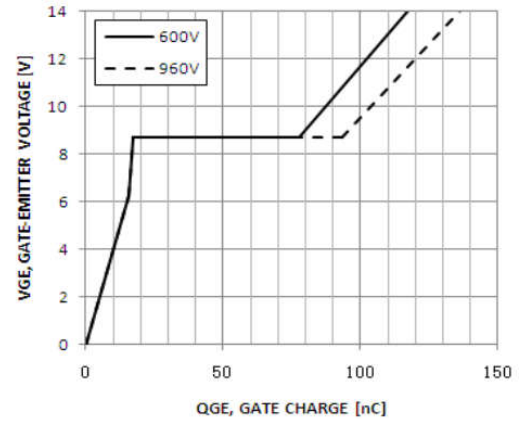


Figure 14. Typical Gate Charge

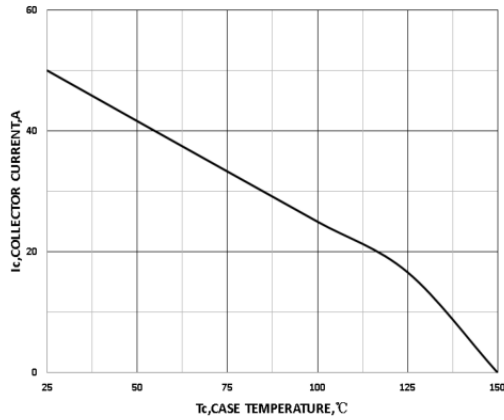


Figure 15. Collector Current vs. Case Temperature

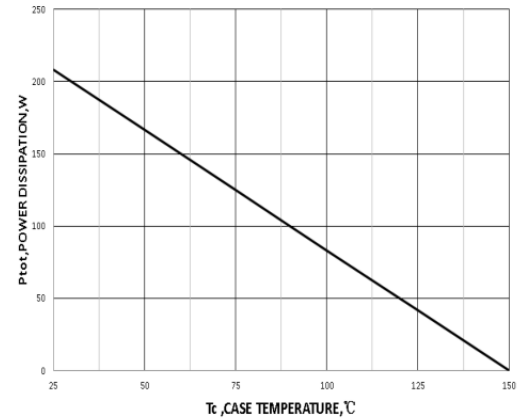


Figure 16. Power Dissipation vs. Case Temperature

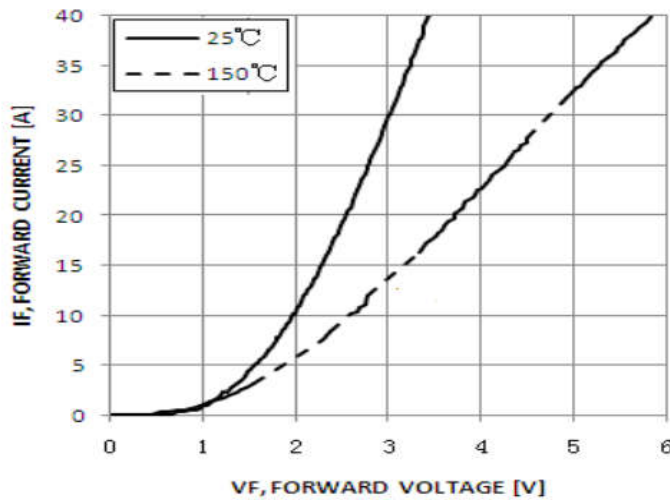
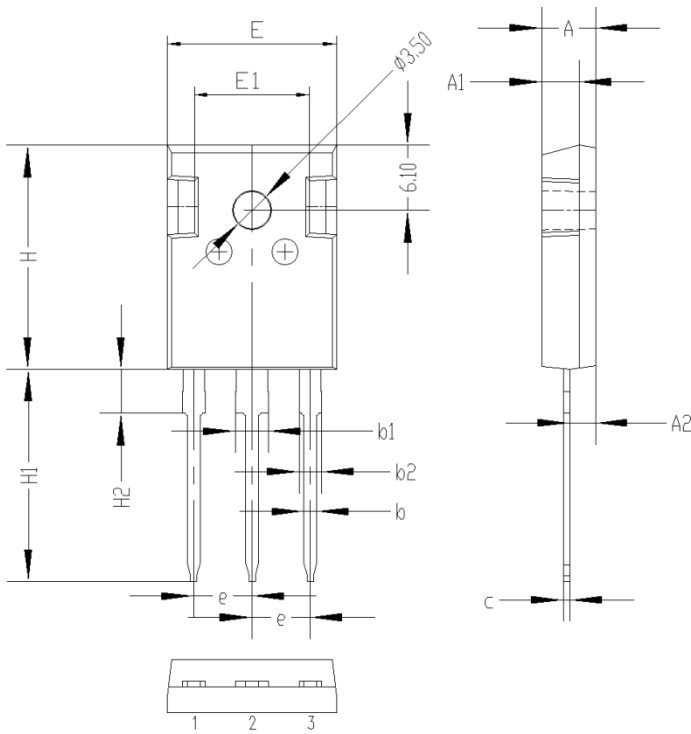


Figure 17. Typical Diode Forward Characteristics

Package Information



Symbol	单位 mm		
	Min	Nom	Max
A	4.8	5.00	5.20
A1	3.3	3.5	3.7
A2	2.20	2.40	2.60
b	1.00	1.2	1.40
b1	2.90	3.10	3.30
b2	1.80	2.00	2.20
c	0.50	0.60	0.70
e	5.25	5.45	5.65
E	15.2	15.7	16.2
H	20.8	21	21.2
H1	19.5	20.0	20.5
H2	3.9	4.1	4.3
G	5.9	6.1	6.3
ϕP	3.30	3.50	3.70

TO-247 PACKAGE



迈诺斯科技

MLG25N135RK

NOTE:

1. Exceeding the maximum ratings of the device in performance may cause damage to the device, even the permanent failure, which may affect the dependability of the machine. Please do not exceed the absolute maximum ratings of the device when circuit designing.
2. When installing the heat sink, please pay attention to the torsional moment and the smoothness of the heat sink.
3. MOSFETs is the device which is sensitive to the static electricity, it is necessary to protect the device from being damaged by the static electricity when using it.
4. Shenzhen Minos reserves the right to make changes in this specification sheet and is subject to change without prior notice.

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