

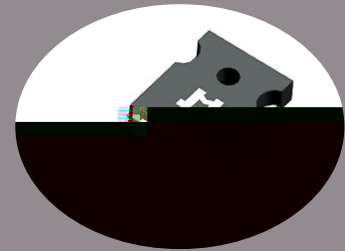
650V 50A Trench and Field Stop IGBT

JJT50N65UK

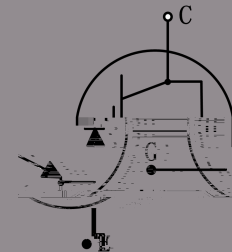
- $V_{CE} = 650V$
- $I_C = 50A @ V_{CE} = 100V$
- $V_{CE(sat)} = 1.7V$

TO-247i

- Trench and field-stop technology.
- Easy parallel switching capability.

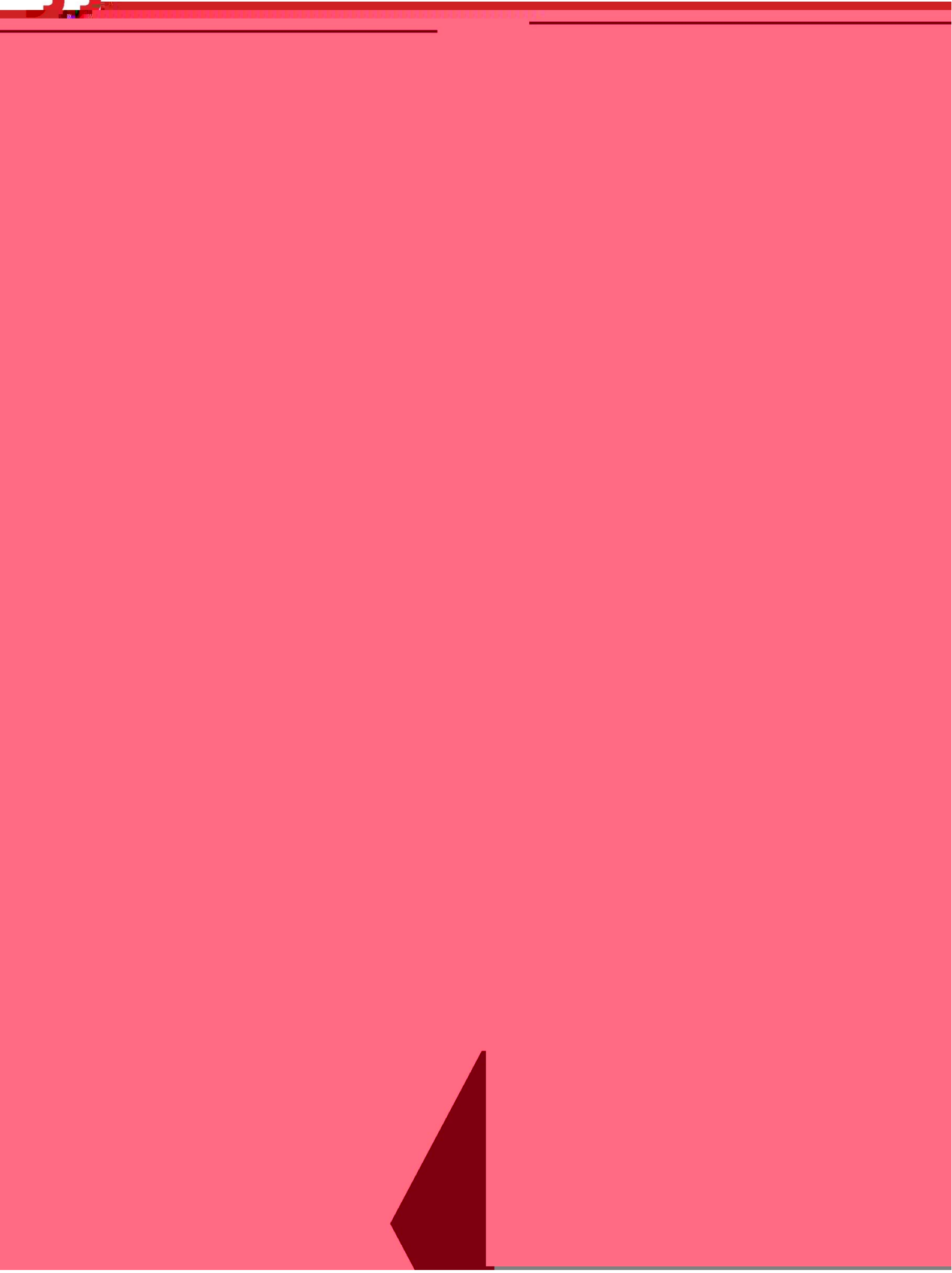


- High efficiency for inverters.
- High ruggedness performance.
- RoHS compliant.



- PFC applications
- Welding machines

| Type | Marking | Package | Packaging Method |
|------------|---------|---------|------------------|
| JJT50N65UK | T0 | b ǎ | T ðve |





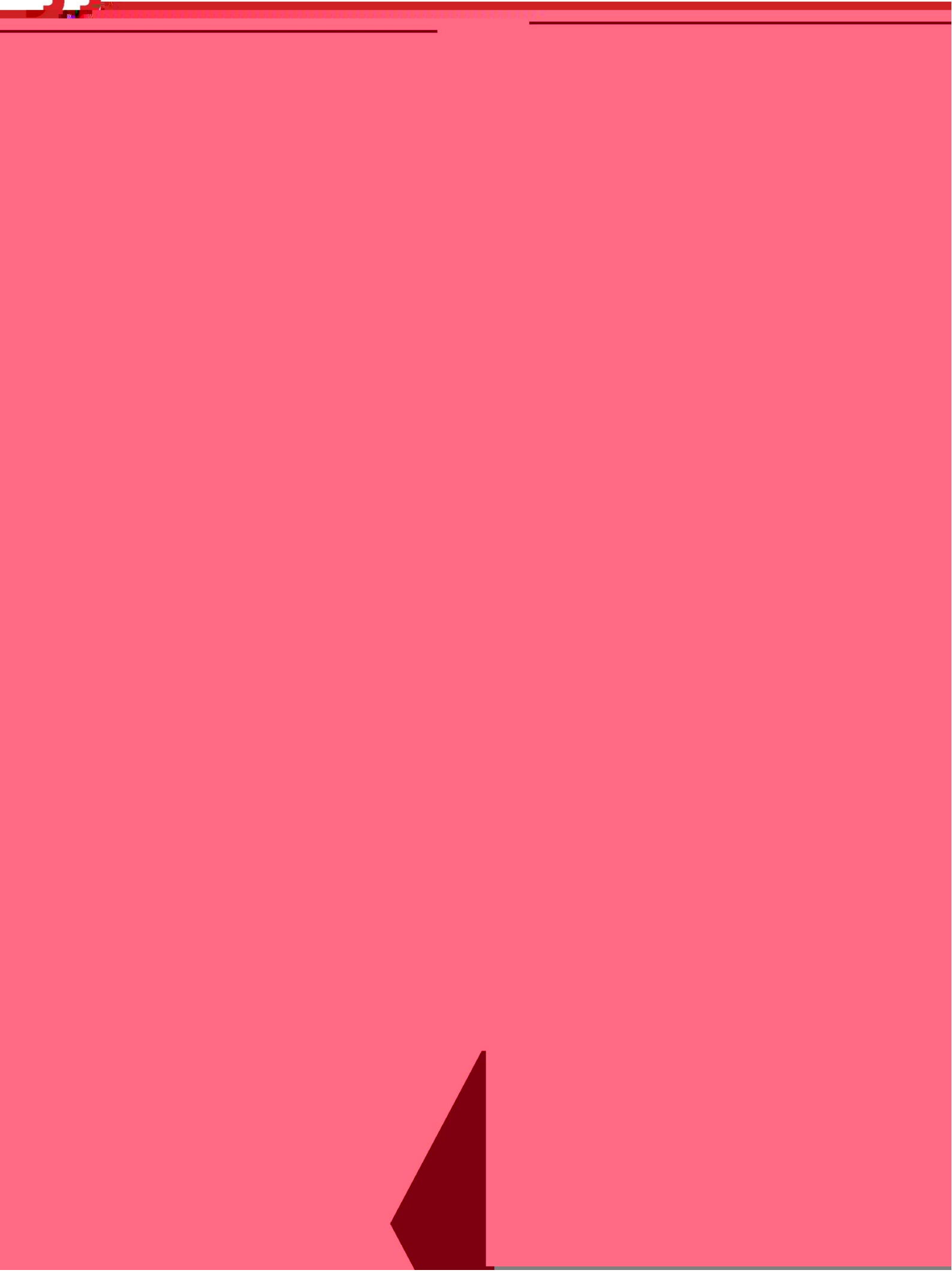
| | | | | | | |
|--------------|-------------------------------------|---------------------------|-----|-----|------|---------|
| V_{CES} | Collector-emitter breakdown voltage | $V_{GE}=0V, I_C=250\mu A$ | 650 | - | - | V |
| I_{CES} | Collector-emitter leakage current | $V_{CE}=650V, V_{GE}=0V$ | - | - | 50 | μA |
| | Gate leakage current, forward | $V_{GE}=20V, V_{CE}=0V$ | - | - | 100 | nA |
| I_{GES} | Gate leakage current, reverse | $V_{GE}=-20V, V_{CE}=0V$ | - | - | -100 | nA |
| $V_{GE(th)}$ | Gate-emitter threshold voltage | $V_{GE}=V_{CE}, I_C=1mA$ | 5.1 | 5.4 | | |

HD



| | | | | | | |
|--------|------------------------|---------------------|---|-----|---|----|
| d(on) | Turn-on delay time | | - | 44 | - | ns |
| r | Rise time | | - | 100 | - | ns |
| d(off) | Turn-off delay time | CC=400V GE=0/15V | - | 166 | - | ns |
| f | Fall time | C=50A G=10 | - | 75 | - | ns |
| on | Turn-on energy | Inductive load | - | 1.7 | - | mJ |
| off | Turn-off energy | | - | 0.9 | - | mJ |
| ts | Total switching energy | | - | 2.6 | - | mJ |
| d(on) | Turn-on delay time | | | | | |

CC=400V
GE=0/15V
C=50A



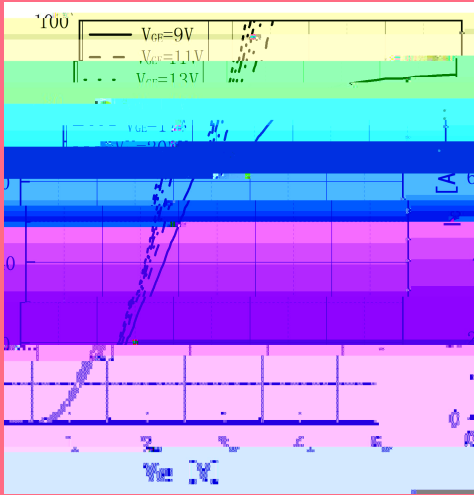


Fig 1. Typical output characteristic ($v_j=25$)

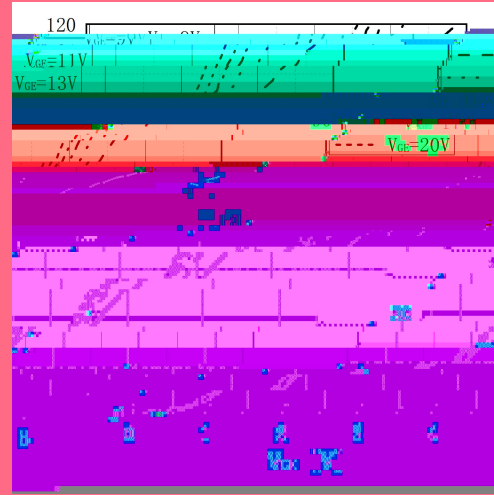


Fig 2. Typical output characteristic($v_j=175$)

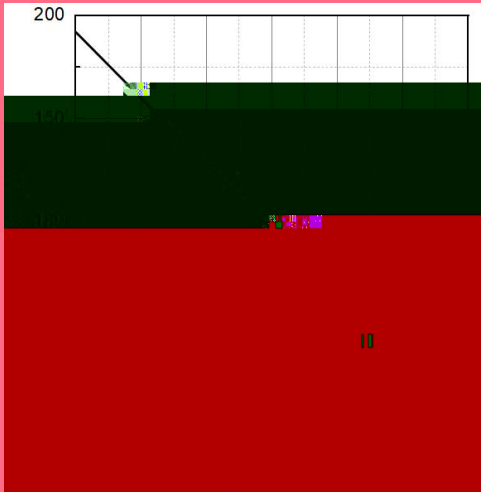


Fig 3. Power dissipation as a function of

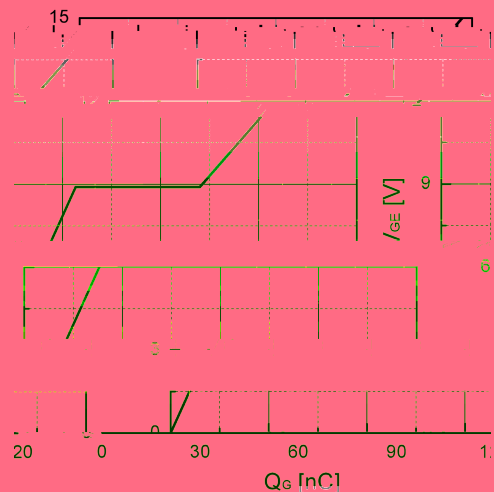


Fig 4. Typical Gate charge

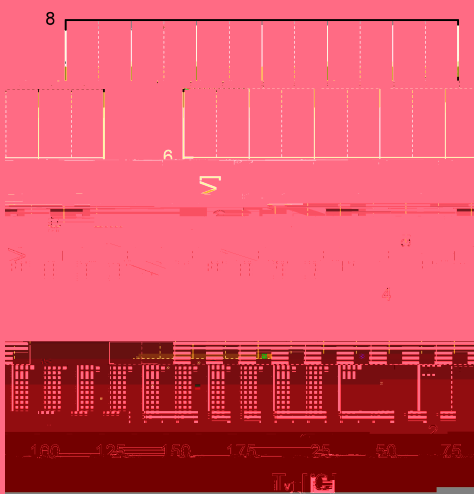


Fig 5. Typical $G_{E(th)}$ as a function of v_j ($c=1mA$)

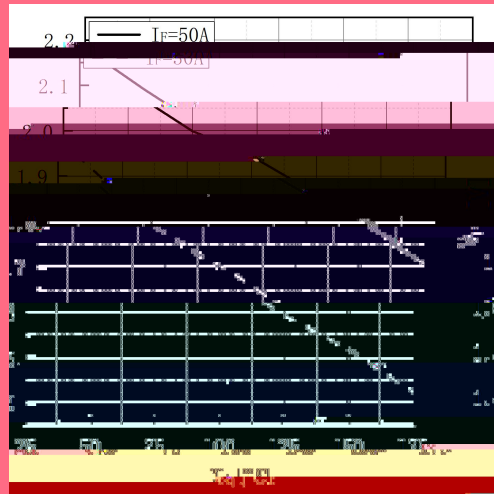


Fig 6. Typical F as function of v_j

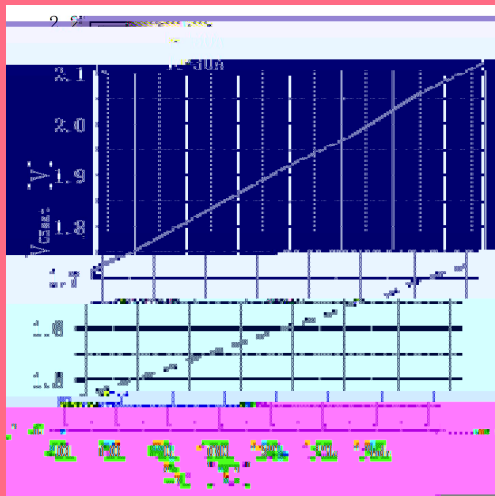


Fig 7. Typical V_{CEsat} as a function of v_j

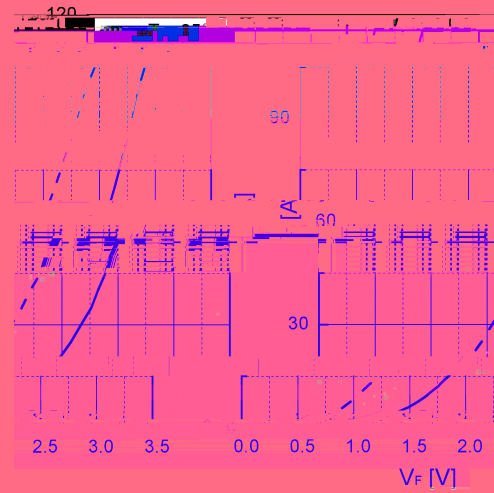


Fig 8. Typical I_F as a function of V_F

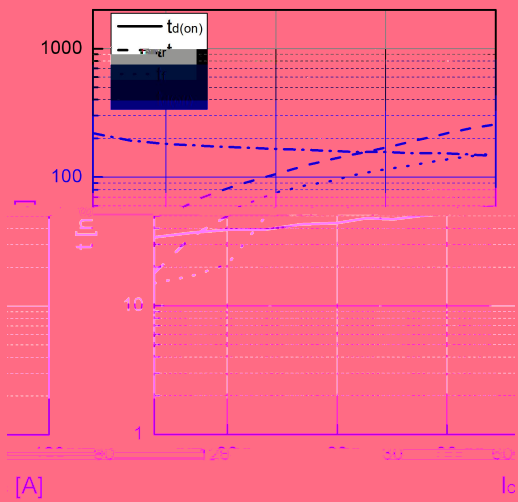
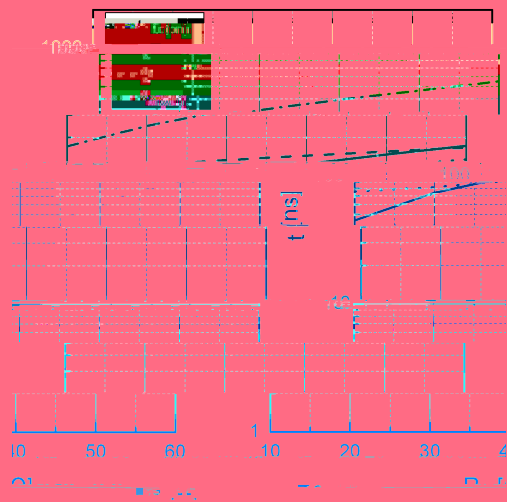


Fig 9. Typical switching time as a





Dimensions

| Ref. | Millimeters | | | Inches | | |
|------|-------------|-------|-------|--------|-------|-------|
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 15.95 | 16.00 | 16.05 | 0.627 | 0.629 | 0.631 |
| B | 21.85 | 21.90 | 21.92 | 0.860 | 0.862 | 0.864 |
| B1 | 5.15 | 5.20 | 5.25 | 0.202 | 0.204 | 0.206 |
| B2 | 4.32 | 4.37 | 4.42 | 0.170 | 0.172 | 0.174 |
| C | 19.01 | 19.11 | 19.21 | 0.748 | 0.752 | 0.756 |
| D | 2.07 | 2.10 | 2.13 | 0.081 | 0.0 | . |



| Date | Revision | Changes |
|------------|-----------|---------|
| 2025-05-17 | Rev A.1.2 | Update |
| | | |
| | | |

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