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SFT1342

Power MOSFET -60V, 62mΩ, -12A, Single P-Channel

Features

- Low On-Resistance
- Low Gate Charge
- Pb-free and RoHS Compliance
- High Speed Switching
- ESD Diode-Protected Gate

Specifications

Absolute Maximum Ratings at $T_a = 25^\circ\text{C}$

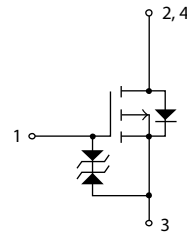
| Parameter | Symbol | Value | Unit |
|--|-----------|--------------------------|------------------|
| Drain to Source Voltage | V_{DSS} | -60 | V |
| Gate to Source Voltage | V_{GSS} | ± 20 | V |
| Drain Current (DC) | I_D | -12 | A |
| Drain Current $PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$ | I_{DP} | -48 | A |
| Power Dissipation | P_D | 1.0 | W |
| | | $T_c = 25^\circ\text{C}$ | 15 |
| Junction Temperature | T_j | 150 | $^\circ\text{C}$ |
| Storage Temperature | T_{stg} | -55 to +150 | $^\circ\text{C}$ |

Thermal Resistance Ratings

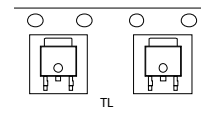
| Parameter | Symbol | Value | Unit |
|-------------------------------|-----------------|-------|--------------------|
| Junction to Case Steady State | $R_{\theta JC}$ | 8.33 | $^\circ\text{C/W}$ |
| Junction to Ambient *1 | $R_{\theta JA}$ | 125 | |

Note : *1 Insertion mounted

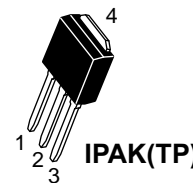
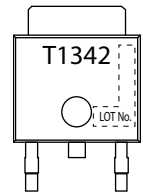
Electrical Connection P-Channel



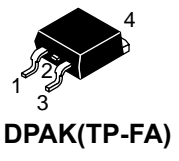
Packing Type: TL



Marking



IPAK (TP)



DPAK (TP-FA)

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

ORDERING INFORMATION

See detailed ordering and shipping information on page 6 of this data sheet.

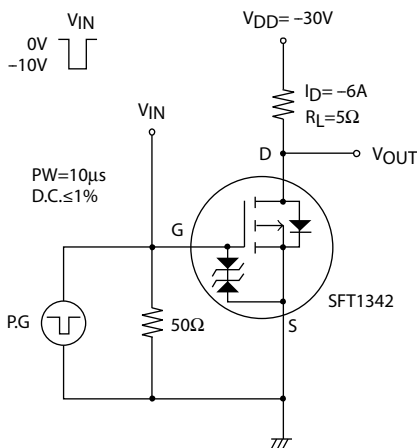
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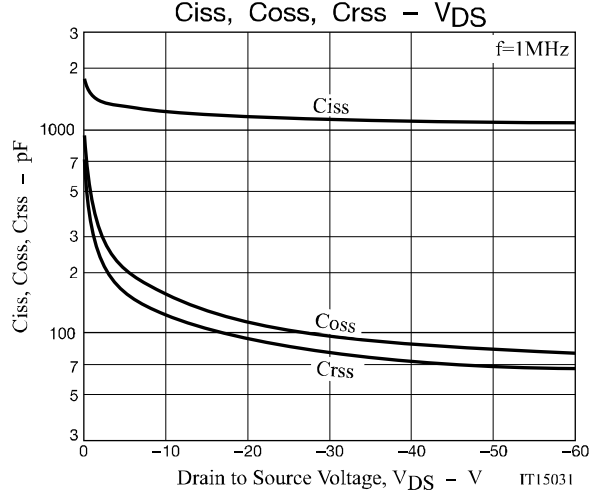
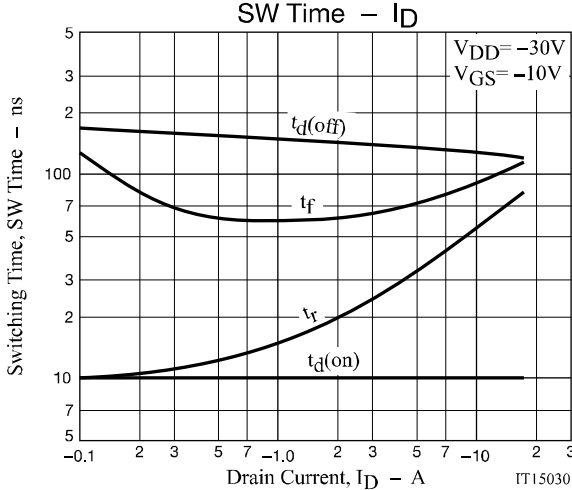
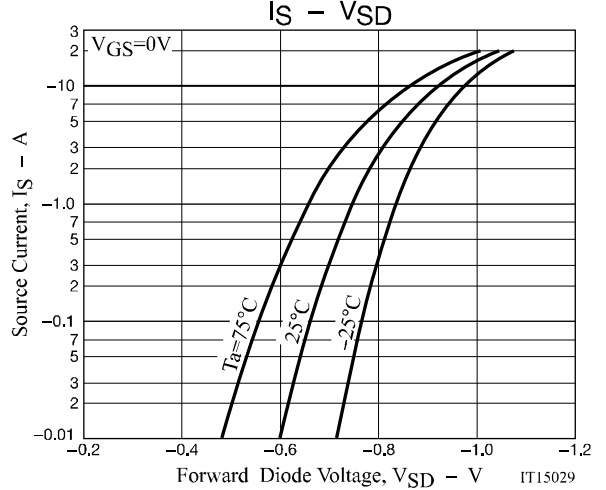
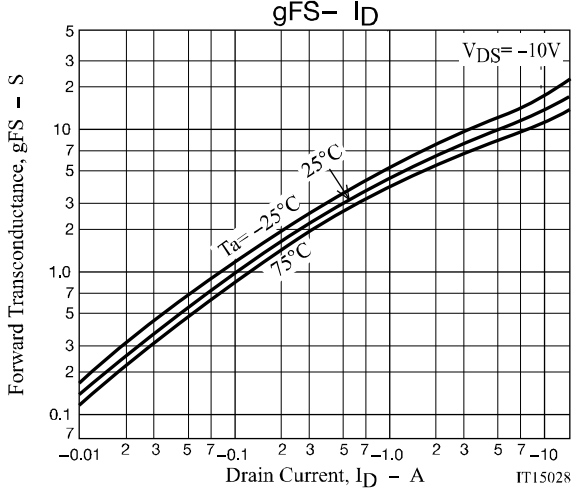
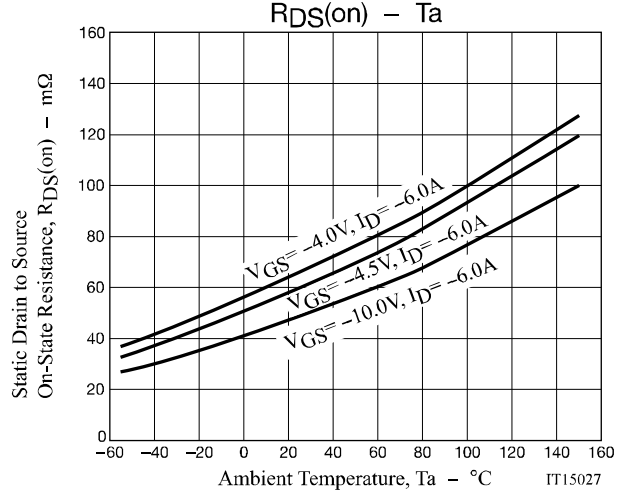
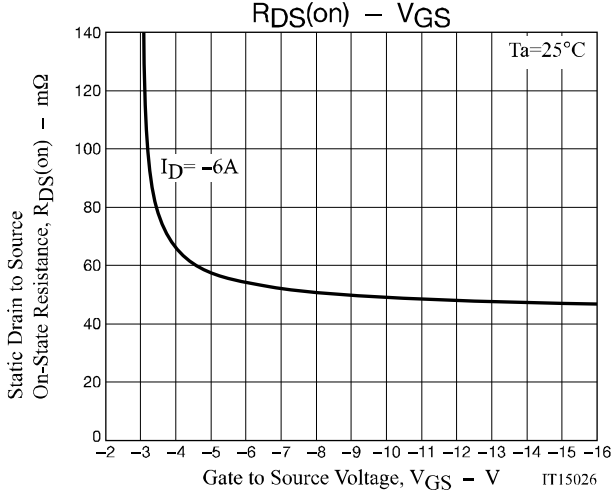
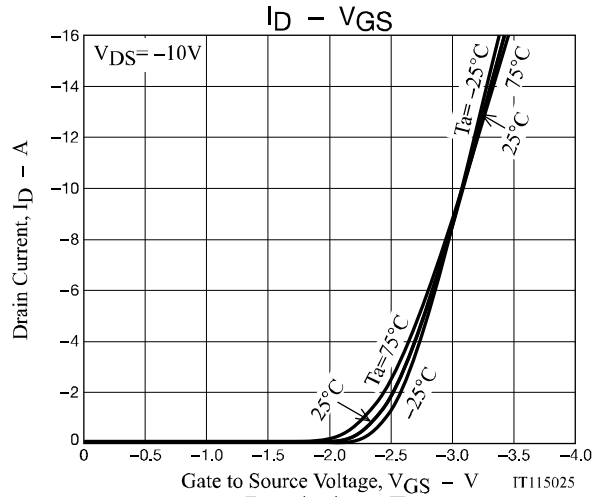
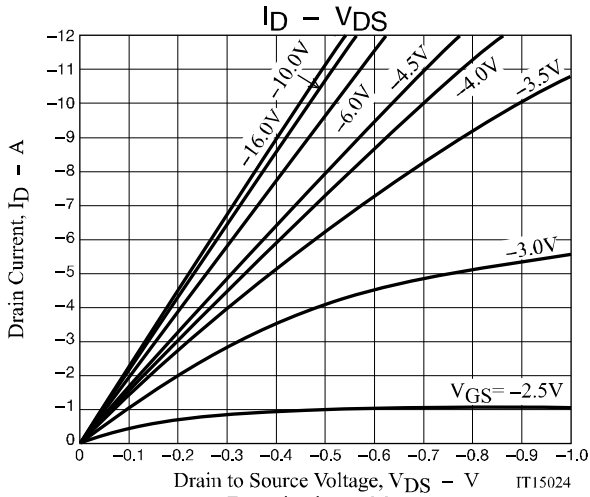
Electrical Characteristics at $T_a = 25^\circ\text{C}$

| Parameter | Symbol | Conditions | Value | | | Unit |
|--|---------------|---|-------|-------|----------|------------------|
| | | | min | typ | max | |
| Drain to Source Breakdown Voltage | $V_{(BR)DSS}$ | $I_D = -1\text{mA}, V_{GS} = 0\text{V}$ | -60 | | | V |
| Zero-Gate Voltage Drain Current | I_{DSS} | $V_{DS} = -60\text{V}, V_{GS} = 0\text{V}$ | | | -1 | μA |
| Gate to Source Leakage Current | I_{GSS} | $V_{GS} = \pm 16\text{V}, V_{DS} = 0\text{V}$ | | | ± 10 | μA |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS} = -10\text{V}, I_D = -1\text{mA}$ | -1.2 | | -2.6 | V |
| Forward Transconductance | g_{FS} | $V_{DS} = -10\text{V}, I_D = -6\text{A}$ | | 11 | | S |
| Static Drain to Source On-State Resistance | $R_{DS(on)1}$ | $I_D = -6\text{A}, V_{GS} = -10\text{V}$ | | 47 | 62 | $\text{m}\Omega$ |
| | $R_{DS(on)2}$ | $I_D = -6\text{A}, V_{GS} = -4.5\text{V}$ | | 62 | 87 | $\text{m}\Omega$ |
| | $R_{DS(on)3}$ | $I_D = -6\text{A}, V_{GS} = -4\text{V}$ | | 68 | 96 | $\text{m}\Omega$ |
| Input Capacitance | C_{iss} | $V_{DS} = -20\text{V}, f = 1\text{MHz}$ | | 1150 | | pF |
| Output Capacitance | C_{oss} | | | 115 | | pF |
| Reverse Transfer Capacitance | C_{rss} | | | 95 | | pF |
| Turn-ON Delay Time | $t_{d(on)}$ | | | 10 | | ns |
| Rise Time | t_r | See specified Test Circuit. | | 37 | | ns |
| Turn-OFF Delay Time | $t_{d(off)}$ | | | 135 | | ns |
| Fall Time | t_f | | | 75 | | ns |
| Total Gate Charge | Q_g | | | 26 | | nC |
| Gate to Source Charge | Q_{gs} | $V_{DS} = -30\text{V}, V_{GS} = -10\text{V}, I_D = -12\text{A}$ | | 3.5 | | nC |
| Gate to Drain "Miller" Charge | Q_{gd} | | | 5 | | nC |
| Forward Diode Voltage | V_{SD} | $I_S = -12\text{A}, V_{GS} = 0\text{V}$ | | -0.95 | -1.2 | V |

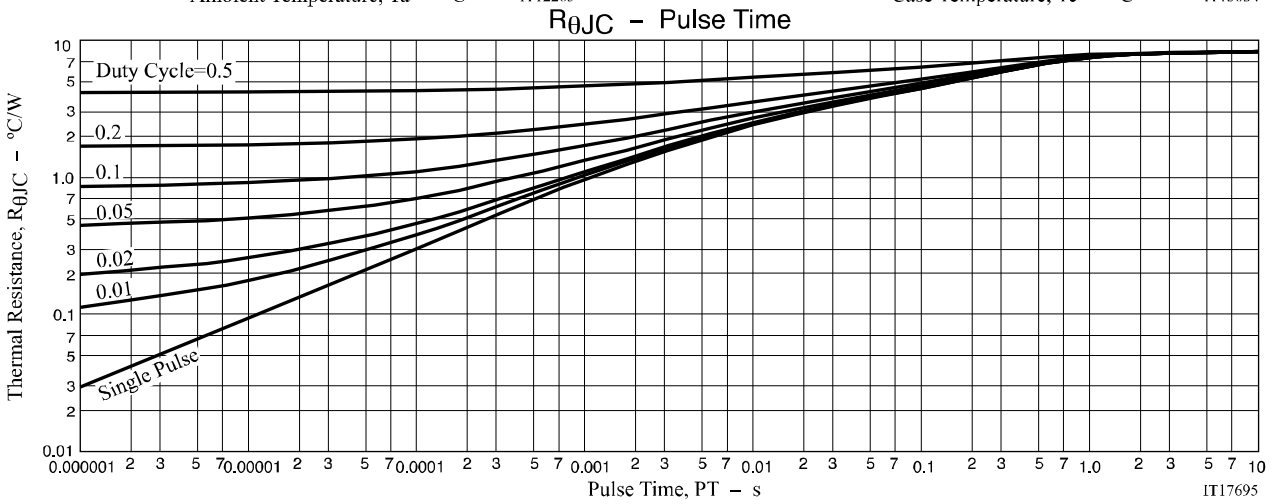
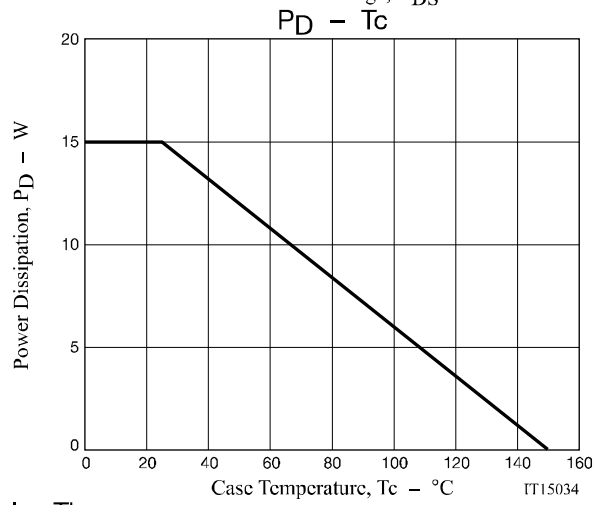
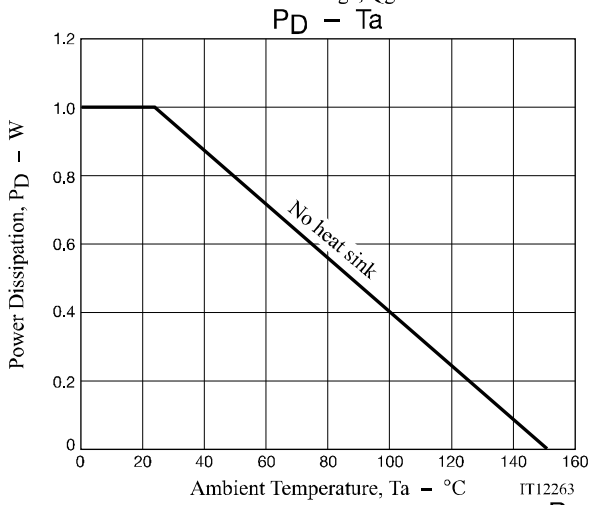
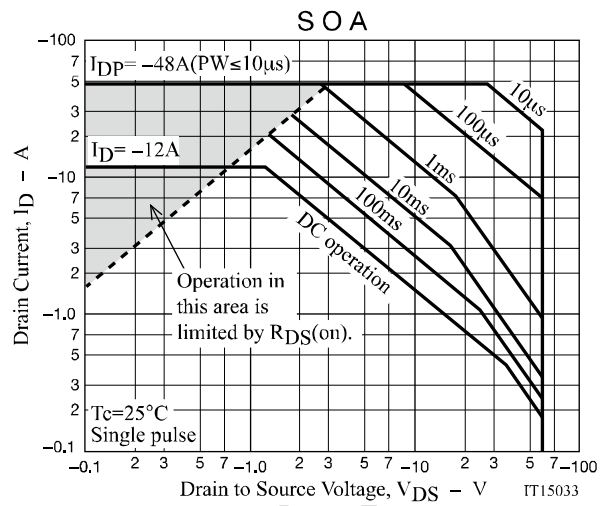
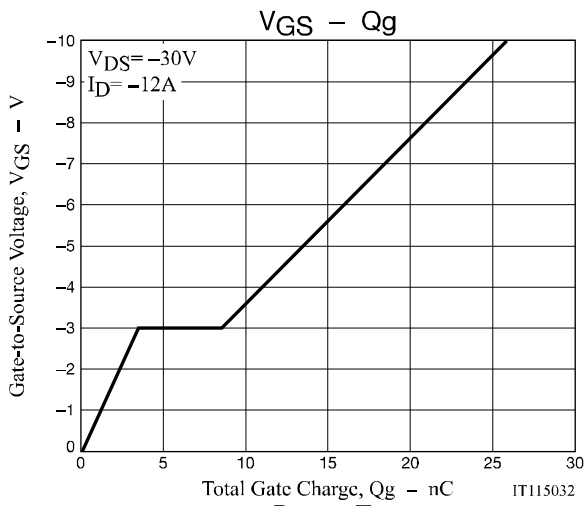
Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

Switching Time Test Circuit





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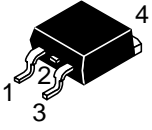
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Package Dimensions

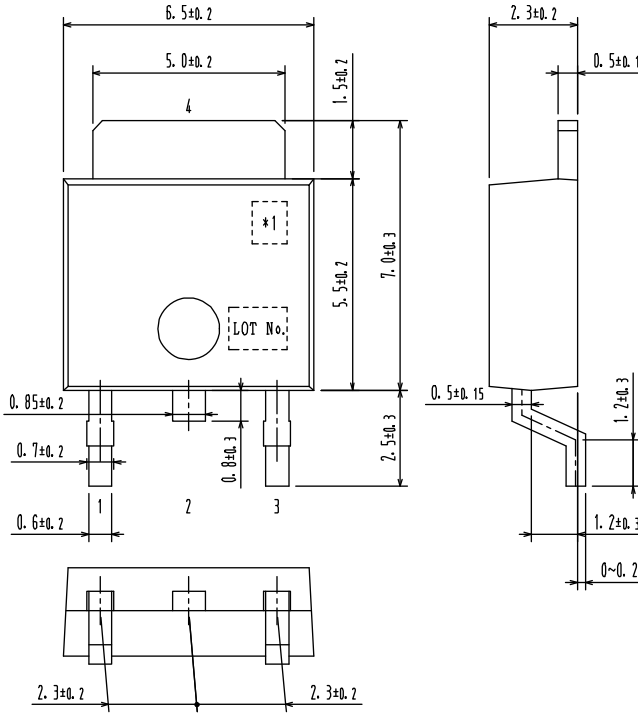
SFT1342-TL-E/ SFT1342-TL-W

DPAK/TP-FA

unit : mm



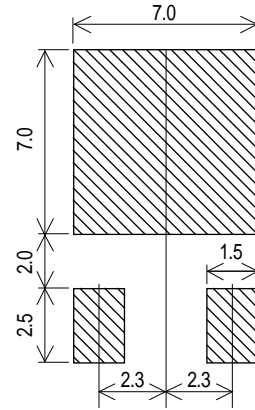
- 1:Gate
- 2:Drain
- 3:Source
- 4:Drain



Pin 2 is idle pin with electrical designation only carried.

*1:Lot indication

Recommended Soldering Footprint



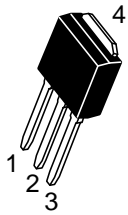
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Package Dimensions

SFT1342-E/ SFT1342-W

IPAK/TP

Unit : mm

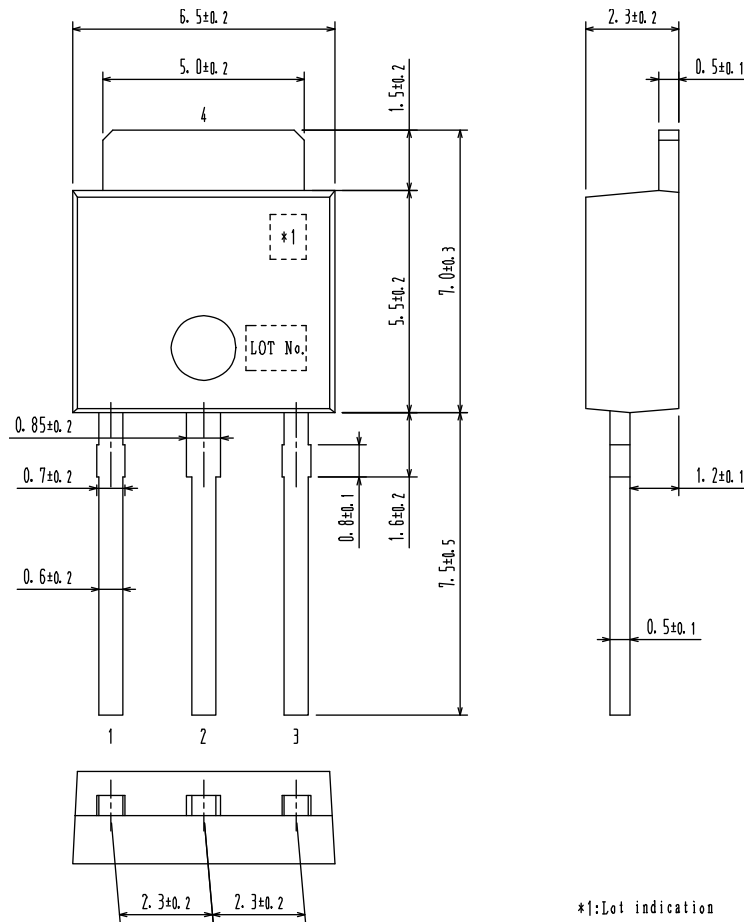


1:Gate

2:Drain

3:Source

4:Drain



Ordering & Package Information

| Device | Package | Shipping | Note |
|--------------|-----------------------------|----------------|--------------------------|
| SFT1342-E | IPAK(TP) SC-64,TO-251 | 500pcs. / bag | Pb-Free |
| SFT1342-W | | | Pb-Free and Halogen Free |
| SFT1342-TL-E | DPAK(TP-FA) SC-63,TO-252 | 700pcs. / reel | Pb-Free |
| SFT1342-TL-W | | | Pb-Free and Halogen Free |

Note on usage : Since the SFT1342 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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