

Cree, Inc. : Portfolio Report

Introduction:

Cree, Inc. is a manufacturer of light-class LEDs (Light Emitting Diode), lighting products, and semiconductor products for power and radio frequency (RF) applications. The company is headquartered in North Carolina, USA. ^[1]

Founded in 1987, Cree's products are based on the naturally occurring mineral compound, silicon carbide (SiC). The advantage of using SiC is that it enables higher performance and efficiency in applications that require high endurance. The compound can also be used in semiconductor devices that function at high voltages or high temperatures, or both. ^[1]

The company operates through three product segments: Lighting Products, LED Products, and Power and RF Products. LED lighting systems and bulbs are offered by the Lighting Products segment. The LED segment offers products such as LED chips, LED components, and SiC materials. The Power and RF segment offers RF and power devices. ^[2]

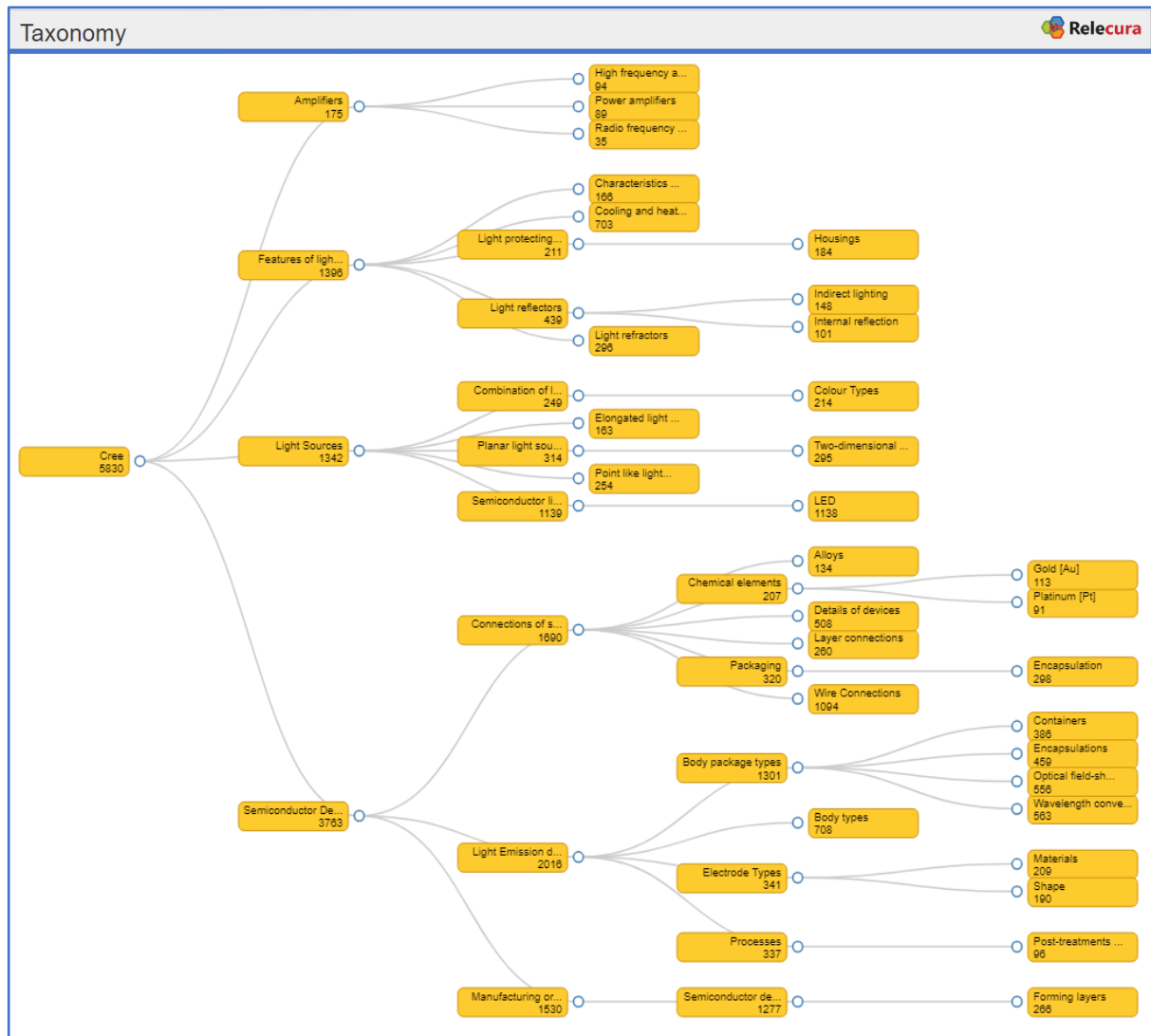
Cree's products are used for applications such as video displays, indoor and outdoor lighting, satellite and broadband telecommunications, power supplies, electronic signs and signals, inverters and wireless systems, military, and transportation. ^{[1][2]} This report takes a closer look at the patents in Cree's portfolio that are currently in force. It includes a portfolio taxonomy and provides insights into various aspects of the overall portfolio.

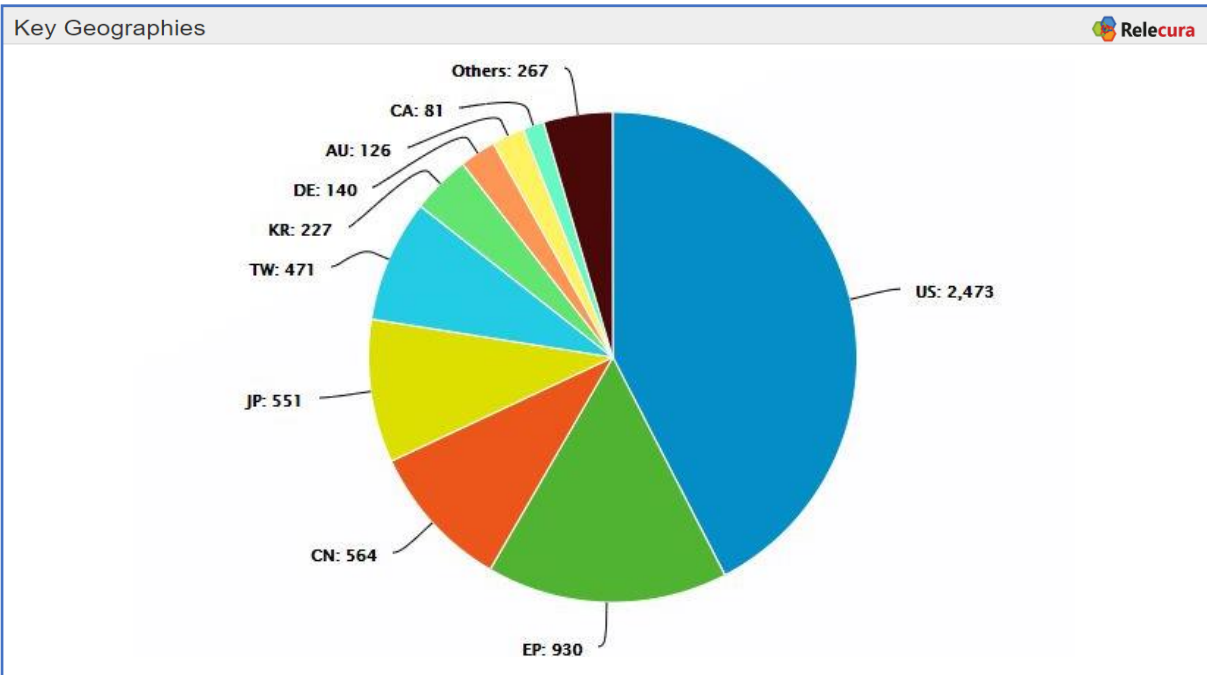
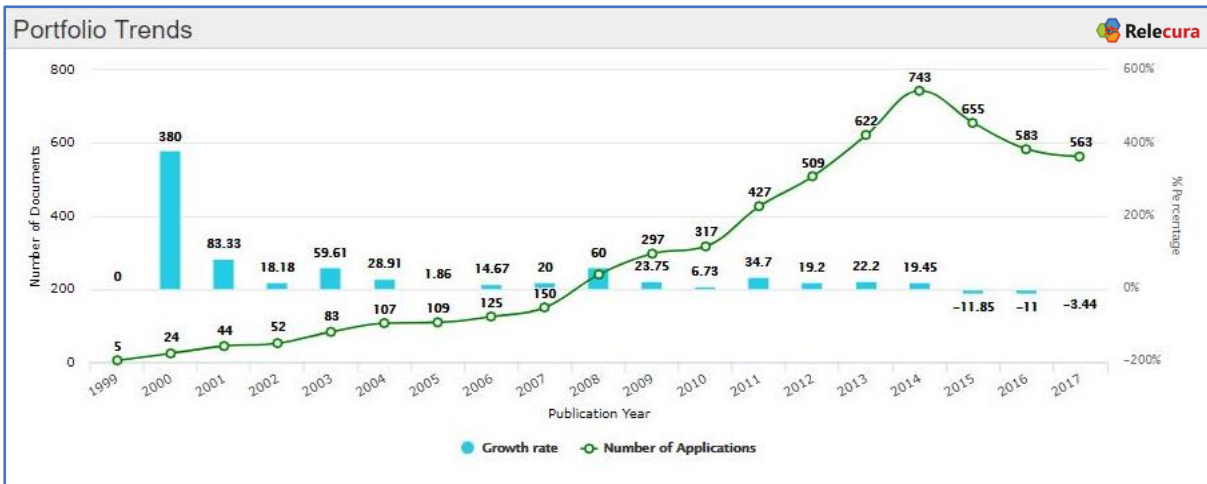
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Sources

- [1. Cree Inc. \(Wikipedia\)](#)
- [2. Cree Company Profile \(Reuters\)](#)

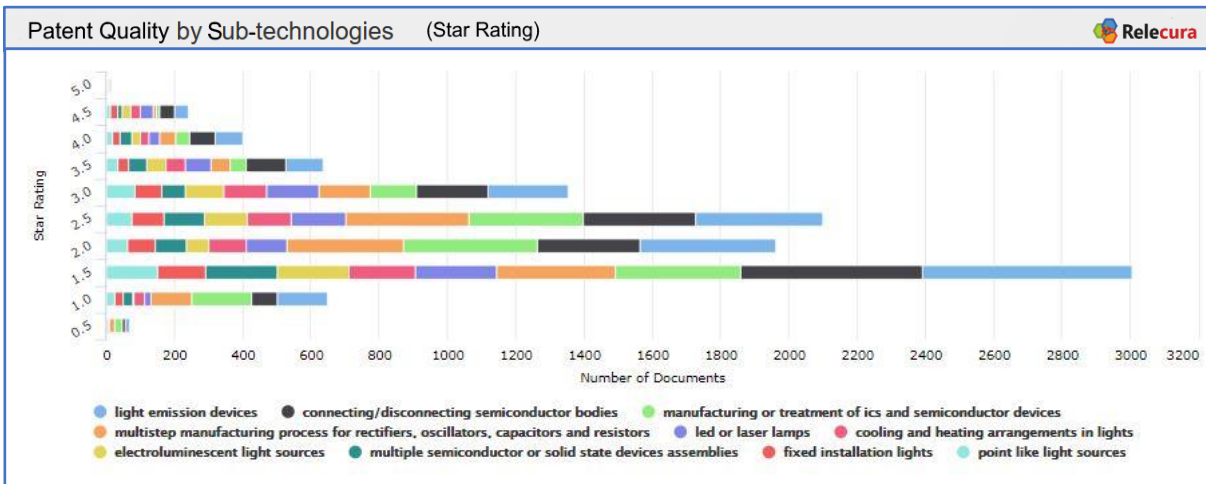
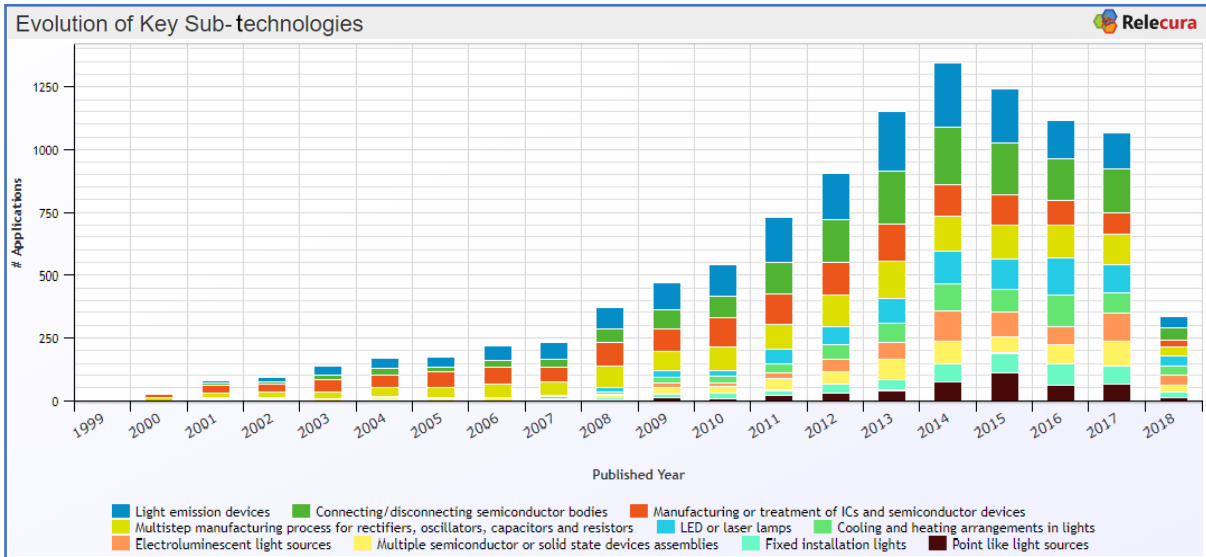




| Key Technologies | | Relecura |
|---|----------------|----------|
| Technologies | # Applications | |
| Electric Elements - Semiconductor Devices | 3757 | |
| Other Lighting Devices | 1395 | |
| Light Sources Form | 1212 | |
| Light Sources Others | 892 | |
| Electric Heating & Lighting | 684 | |
| Non-Portable Lighting Devices | 678 | |
| Crystal Growth | 409 | |
| Greentech - Others | 364 | |
| Miscellaneous Technologies | 354 | |
| Optical Elements | 298 | |

| Key Sub-technologies | | Relecura |
|---|---------------|----------|
| Sub-Technologies | #Applications | |
| Light emission devices | 2015 | |
| Connecting/disconnecting semiconductor bodies | 1690 | |
| Manufacturing or treatment of ICs and semiconductor devices | 1524 | |
| Multistep manufacturing process for rectifiers, oscillators, capacitors and resistors | 1439 | |
| LED or laser lamps | 842 | |
| Cooling and heating arrangements in lights | 703 | |
| Electroluminescent light sources | 632 | |
| Multiple semiconductor or solid-state devices assemblies | 623 | |
| Fixed installation lights | 485 | |
| Point like light sources | 456 | |

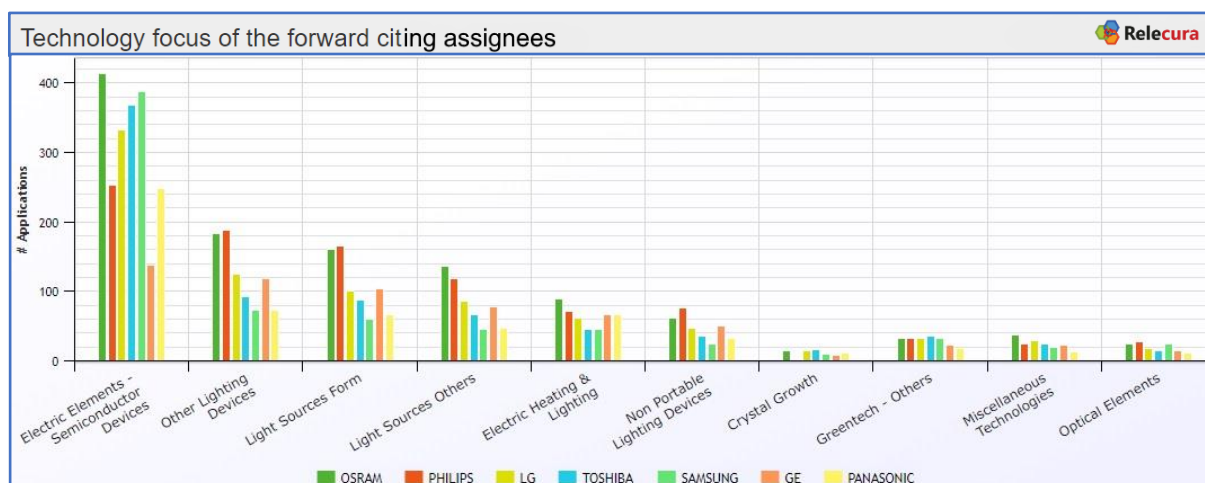
| Analysis of Key Technologies | | | | | Relecura |
|---|--------------|--------|---|---|----------|
| Technologies | Applications | Grants | Sub Technologies | Geographies | |
| electric elements - semiconductor devices | 945 | 2724 | light emission devices (2018) , connecting/disconnecting semiconductor bodies (1890) , manufacturing or treatment of ics and semiconductor devices (1524) , multistep manufacturing process for rectifiers, oscillators, capacitors and resistors (1440) , multiple semiconductor or solid state devices assemblies (823) | US (1344) , EP (634) , JP (484) , CN (395) , TW (368) | |
| other lighting devices | 402 | 943 | cooling and heating arrangements in lights (703) , led or laser lamps (702) , fixed installation lights (478) , light reflectors (439) , point like light sources (435) | US (717) , EP (207) , CN (109) , TW (99) , JP (80) | |
| light sources form | 346 | 823 | led or laser lamps (728) , cooling and heating arrangements in lights (836) , point like light sources (465) , fixed installation lights (431) , light reflectors (394) | US (612) , EP (192) , CN (104) , TW (98) , JP (81) | |
| light sources others | 280 | 610 | led or laser lamps (842) , cooling and heating arrangements in lights (451) , light sources with led means associated with conversion means (409) , point like light sources (311) , connecting/disconnecting semiconductor bodies (256) | US (457) , EP (151) , TW (82) , CN (79) , JP (48) | |
| electric heating & lighting | 229 | 439 | electroluminescent light sources (632) , circuits for electric light sources (313) , led or laser lamps (188) , connecting/disconnecting semiconductor bodies (183) , energy efficient lighting (140) | US (353) , EP (128) , CN (81) , TW (50) , JP (43) | |



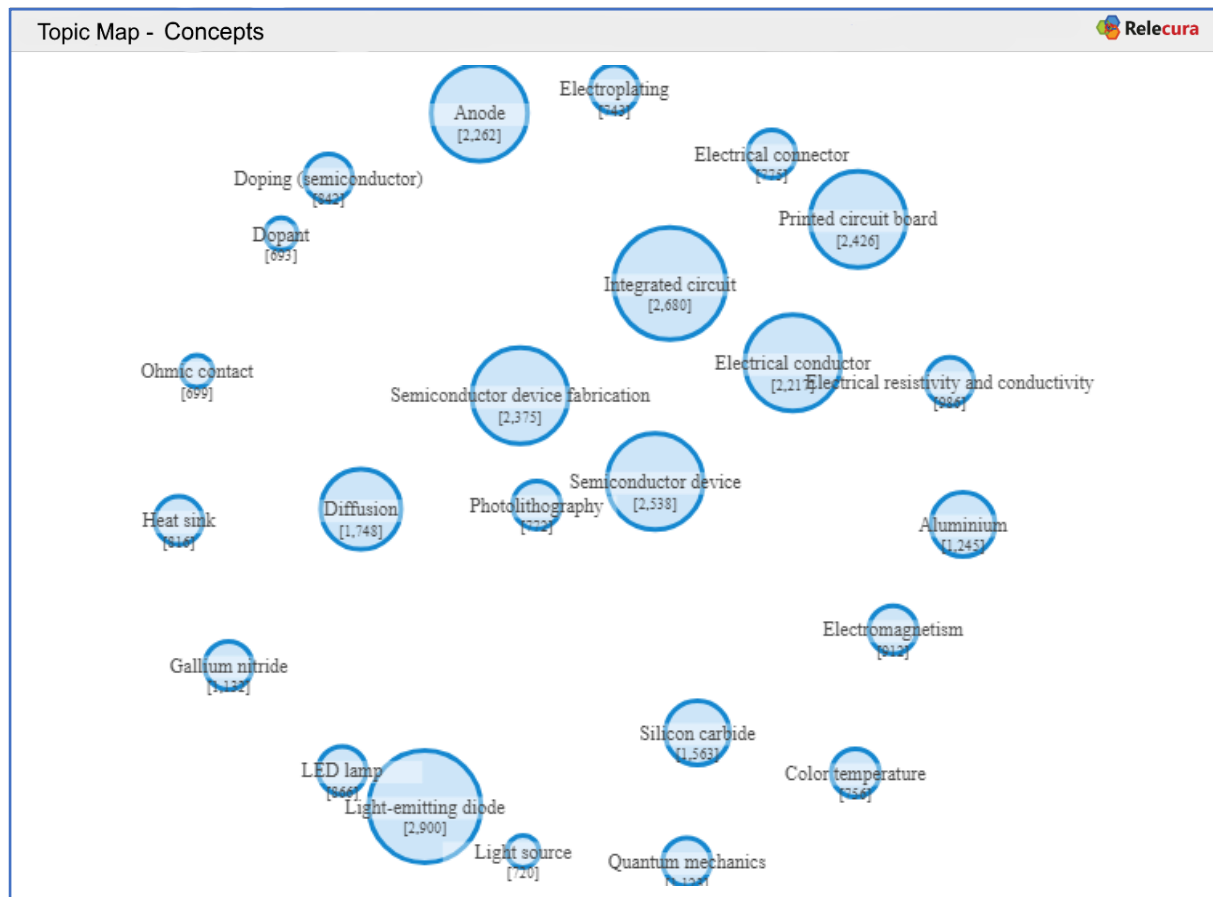
Key Patents

| Publication No. | Title | Inventor | Filing Date | Star Rating | #Fwd Citations |
|-----------------|--|---|-------------|-------------|----------------|
| US9441793B2 | High efficiency lighting device including one or more solid state light emitters, and method of lighting | Antony Paul Van De Ven, Gerald H. Negley | 2009-06-01 | 5.0 | 94 |
| US8940561B2 | Systems and methods for application of optical materials to optical elements | Matthew Donofrio, Nathaniel O. Cannon | 2010-03-03 | 5.0 | 172 |
| US9713211B2 | Solid state lighting apparatus with controllable bypass circuits and methods of operation thereof | Antony P. van de Ven, Gerald H. Negley, Michael James Harris, Paul Kenneth Pickard, Joseph Paul Chobot, Terry Given | 2009-09-24 | 5.0 | 123 |
| US8513875B2 | Lighting device and lighting method | Antony Paul Van De Ven, Gerald H. Negley | 2007-04-18 | 5.0 | 167 |
| US8858032B2 | Lighting device, heat transfer structure and heat transfer element | Antony Paul Van De Ven, Gerald H. Negley | 2009-06-21 | 5.0 | 128 |

| Top Forward Citing Assignees | |
|------------------------------|-----------------------|
| FC Assignees | # Applications |
| OSRAM | 575 |
| SAMSUNG | 463 |
| TOSHIBA | 461 |
| PHILIPS | 446 |
| LG | 443 |
| PANASONIC | 342 |
| GE | 282 |
| SUMITOMO | 245 |
| SHARP | 216 |



| Key Acquisitions | | |
|---|----------------|---|
| Transfer from | # Applications | Technologies |
| RUUD LIGHTING | 162 | other lighting devices (109) , light sources form (84) , non portable lighting devices (70) , lighting device applications (58) , light sources others (30) |
| LED LIGHTING FIXTURES | 55 | other lighting devices (24) , light sources form (22) , electric elements - semiconductor devices (18) , light sources others (18) , electric heating & lighting (11) |
| INFINEON | 31 | amplifiers (27) , electric elements - semiconductor devices (22) , impedance networks & resonant circuits (5) , printed circuits (5) , miscellaneous technologies (4) |
| ARKANSAS POWER ELECTRONICS INTERNATIONAL | 27 | communication switches & relays (9) , electric elements - semiconductor devices (9) , measurement - temperature (9) , printed circuits (9) , amplifiers (6) |



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